



MONETARY THEORY

A MODERN TREATMENT OF THE
ESSENTIALS OF MONEY AND BANKING

By GEORGE N. HALM

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and
Fletcher School of Law and Diplomacy*

Second Edition



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SECOND EDITION

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To
FRITZ MACHLUP
IN FRIENDSHIP AND GRATITUDE

PREFACE TO THE SECOND EDITION

The first edition of this book was published in 1942. The major event in the monetary field since that time has been the Bretton Woods Conference. The intense effort which culminated recently in the establishment of the International Monetary Fund and the Bank for Reconstruction and Development has greatly helped our understanding of the role which money plays in international economic relations.

Since it seemed quite obvious that the second edition of *Monetary Theory* should include these recent developments, the material which is now contained in Part II has been rewritten and greatly enlarged. There are also a few minor additions to chapters 17 (section 5) and 23 (sections 7 and 10). Section 4 of chapter 3 has been simplified.

Again I am greatly indebted to my friends Fritz Machlup and Lorie Tarshis. Professor Tarshis suggested many improvements in the newly written Part II. Professor Machlup has given so generously of his time and editorial skill that I cannot find words to express my gratitude.

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PREFACE TO THE FIRST EDITION

In this book I try to summarize the present state of the debate in monetary theory as I see it. Recent efforts have succeeded in integrating monetary and general economic theory. Monetary problems can no longer be treated as being separate from the problems of prices and production. The theories of the business cycle, of income and employment, of saving and investment are so interlocked with the "theory of money" that a discussion of the essential problems of money and credit cannot be limited to the quantity theory and the general price level.

The institutional and historical characteristics of the various money and banking systems are ably described in the works of other authors. The main object of this book is to complement such treatments by a more detailed theoretical analysis. What I consider the essential features of the banking structure are introduced by way of illustration.

Many years of teaching experience have convinced me that the introduction of a large amount of factual data tends to confuse the student's understanding of the working of the monetary system. It is my hope that placing major emphasis upon theoretical problems will give the elementary student in money and banking a more lucid introduction to this field of economics.

I am deeply indebted to Dr. Horace G. White, Jr., whose untiring effort has helped very substantially to give the book its present form. Professor Fritz Machlup has read the whole

manuscript and has made many profound and valuable suggestions for alterations and improvements. The advice of Professor Loric Tarshis prevented occasional errors in chapters 13 to 15. Mr. H. Austin Peck has given me valuable help in reading the book from the students' point of view and in urging clarification where it was needed.

GEORGE N. HALM

TUFTS COLLEGE, MASS.
March, 1942

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PART I

The Supply and Value of Money

Chapter 1

MONEY AND MONEY ECONOMY

1. THE ECONOMIC FUNCTIONS OF MONEY

Social economy has always been, and probably will remain, a monetary economy. The exceptions are of no significance. Small communities in isolation may do without money and barter may suffice under very primitive conditions. We might also conceive of a modern economy which is so completely planned that it does not use money. But between the non-monetary orders of earliest times and of a perhaps very distant future we have societies which, though differing widely in many respects, are all *monetary* economies. This continuity of money among otherwise changing institutions suggests that this man-made instrument is particularly important for the social economy.

That an increasing division of labor gives rise to increasing exchange, and that increasing exchange encourages the use of ever improving monetary instruments, can be readily understood. It is next to impossible that all wishes of bartering individuals should coincide as to the kind, quality, quantity and value of the things which are mutually desired, especially in a modern economy in which on a single day millions of persons may exchange millions of commodities and services. A medium of exchange which everyone is willing to accept easily overcomes the difficulties of barter, for by splitting the actions of barter into purchases and sales which are independent of each other, the need is eliminated for peoples' wishes to coincide exactly as to quality, quantity, value, time and place.

The facilitating work of money, however, is more than this. If two commodities have to be exchanged for each other, this can be done only on the basis of a more or less exact calculation of their respective values. In bartering we try to express the value of one commodity in units of the other commodity in question, and if we want to exchange millions of commodities and services, their direct relations in terms of value are practically infinite. No one could master all the value relations which are of practical importance to him. If there existed no means of simplifying these innumerable relations, a highly developed exchange economy would be impossible. What is needed is a way of simplifying the calculations upon which exchanges are based, and this is accomplished by expression of the values of goods and services in a common monetary denominator. The units of all different commodities or services are estimated in units of the standard good, and their values are from then on easily compared. The standard good provides the basis of both the "unit of account" and the "medium of exchange."

The medium of exchange and the standard of value need not be represented by the same good. It is only necessary for the units of the medium of exchange to be expressed in the units of the standard of value. The difference is of practical importance only as long as the units of the medium of exchange are not entirely identical. If cattle are the medium of exchange, each unit has to be estimated separately in units of a standard good which may be only the "idea" of a real good, e.g., "normal" cattle.¹ This shows that the medium of exchange may be, strictly speaking, a concrete thing, whereas the unit

¹ See J. M. Keynes, *A Treatise on Money*, Vol. 1, New York, Harcourt, Brace and Company, 1930, p. 13: "A District Commissioner in Uganda to-day, where goats are the customary native standard, tells me that it is a part of his official duties to decide, in cases of dispute, whether a given goat is or is not too old or too scraggy to constitute a standard goat for the purposes of discharging a debt."

of account may be an abstract quantity. If, however, the units of the medium of exchange are practically identical (for example, units of weight of a precious metal or pieces of paper bearing a certain imprint), there is not much sense in being too particular about this distinction. The unit of the medium of exchange becomes at the same time the unit of account, that is, we calculate in terms of units of the medium which we actually use. The word money has been used to designate the medium of exchange as well as the standard of value. Since the two meanings can easily be distinguished from each other there is probably not much danger in using the term money in this ambiguous old-fashioned way.

2. MONEY IN THE CAPITALIST ECONOMY

The importance of money in the modern social economy may best be grasped if we try to outline the functioning of the pricing process in a capitalist economy.²

The capitalist economy is not regulated by a central planning board. The factors of production (labor, natural resources, and capital goods) are privately owned and are used according to the free decisions of their owners who are also free to spend what money they earn by selling these factors, or are able to borrow, on any selection of goods within the reach of their purchasing power. If they should decide not to spend their money on consumers' goods, that is, if they should want to save, they are free to do so. The use of these savings for the production of capital goods is again dependent on private initiative.

Not being self-sufficient like isolated farmers, the millions of individuals in a modern capitalist economy are co-operating in a gigantic production process of bewildering ramifications. Since there is no central planning board to decide about the

² For a more detailed description see author's contribution to *Collectivist Economic Planning*, edited by F. A. Hayek, London, George Routledge and Sons, 1935, pp. 139-146.

problems of production and distribution in a dictatorial way, we have to ask questions like the following. How does each person find his place in this process? How do the millions of individual efforts gear into each other with not too much waste and friction? How does this huge production process, whose different branches and stages are interdependent to the point of utter complexity, result eventually in the production of those goods which the individuals choose—and choose freely—to consume? And how is the total output distributed as income among the individuals who participate directly or indirectly, as owners of the factors of production or as entrepreneurs, in the productive effort?

We cannot possibly attempt a complete answer to these questions. A short analysis of the pricing process in a modern capitalist economy will, however, suffice to indicate the significance of money and the part it plays in determining and directing the flow of goods and services.

If a wage earner receives a money income for selling labor, he is free to spend his earnings on whatever available commodities or services he decides to buy. Since his total purchases are normally limited by his income, each purchase is made at the expense of foregoing other purchases. Apart from his individual circumstances and tastes the consumer's choice will depend (1) on the total amount of purchasing power at his disposal, that is in the main on his money income; (2) on the part of it which he spends on consumers' goods—his money income minus his savings; (3) on the prices of the commodities and services which he is actually buying; and (4) on the prices of other goods and services. If their prices should go down, the consumers might easily be tempted to buy them rather than the goods referred to under (3).

In making his choice the consumer casts, as it were, his dollar ballots. Though his decisions may seem insignificant for the economy as a whole, we have only to think of the similar act of balloting of millions of other individuals in order to

realize that it is the consumers' decisions to buy or not to buy different commodities at different prices which helps the producer to decide whether more or less of a particular commodity shall be produced. An increasing demand for an article, that is, the willingness on the part of the consumers to buy a larger amount than before at the same price or the same amount as before at a higher price, may at least temporarily increase the producers' profits. And since the producer is driven, we assume, by the profit motive, he will tend to expand his production. A producer, however, whose product has not met with the approval of the buyers, faces decreased demand, will have to sell at a loss and will either curtail his production or stop it altogether, depending on whether he can earn at least some money towards the interest on his fixed capital.

Many thousands of producers daily translate the demand for their products into a demand for the factors of production (labor, natural resources, and capital goods). Since the factors can often be used for various processes, it has to be decided in which field of production they shall be employed. Consumers' demand plays a large part in determining these decisions. The producer for whose product demand has increased will be enabled to offer higher prices for the factors of production and to outbid the producers who face decreasing consumers' demand. Since producer *A* is making profits and producer *B* is incurring losses, it is possible to argue that *A* will be able to hire away *B*'s men or that he can re-employ them if *B* has to lay them off. It is, however, not at all sure that *B*'s men are fit for the type of work which *A* has to offer, nor is it likely that *A* could make use of *B*'s unused plant capacity. It cannot be assumed, furthermore, that decreasing demand for one commodity must always be compensated by an increasing demand for another commodity.

We have to remember that each consumer is free to decide whether or not he wants to spend his whole disposable income on consumption. He may save \$100. If the \$100 reaches a bor-

rowing customer of his bank, who wants to expand his business, the \$100 will be invested, that is, spent for capital goods. But if the consumer simply increases his cash holdings or if the bank should not be able to find a borrower for his savings, the demand for \$100 worth of consumers' goods has disappeared without a compensating increase in the demand for capital goods. The total money flow has, therefore, decreased and this means a decrease in total demand. Multiplying this case of hoarding by many thousand times, we understand that production may be curtailed one-sidedly and that the demand for the factors of production may fall off all along the line. And if men lose their jobs, and therewith the source of their money income, they will not be able to buy and this new decline in total demand will again affect adversely production and employment, and so on and so forth.

On the other hand it is quite possible that new incomes are created through the creation and the expenditure of new money, that total demand increases, that production tends to expand and that unemployed resources are re-employed. Whether prices in general will increase depends, in this case, on the comparative increase in the production and the supply of the commodities the demand for which is increased. Should full employment of the productive resources be approached and should the national income produced have reached its physical maximum and should, nevertheless, through the creation of additional money, the total demand increase—then prices in general would have to rise.

In the pricing process of the capitalist economy we have therefore to distinguish two different, though closely inter-related, price movements. There are, first, the *relative* price movements which indicate, e.g., that the consumers care more for *A*'s than for *B*'s product, whereupon *A* will be induced to expand production, to hire more men, to pay, if necessary, higher wages, and to borrow loanable funds. These are the price movements that regulate production and dis-

tribution. But secondly there are *general* price movements, caused by an increase or decrease in total monetary demand, provided that the change in demand is not exactly compensated by a proportional change in total supply. These general price movements could be a matter of indifference for the economy if it were not for the fact that they are bound to disturb the structure of relative prices on which, as we have seen, the regulation of production is based in the capitalist economy.

We complete our short sketch of the pricing process by the statement that the pricing processes on the different markets are interrelated and that they are supposed to lead to a state of equilibrium in which the economy will remain until it has to be adjusted anew to changes in the data, such as changes in tastes, in technology, or in the supply of the factors of production. If consumers' tastes change, producer *A* may suffer losses and producer *B* may reap profits which again affects their respective demands for the factors of production, which again affects other peoples' incomes, which again affects demand, and so on and so forth. A new invention may have similar repercussions until the factors of production are newly arranged, until the labor which may have been displaced by machines has found new jobs, possibly at considerably lower wages, and until the concomitant changes in demand and the necessary adjustments in production have taken place. In other words a realignment of the factors of production takes place and goes on until the adjustment is complete and a new equilibrium point is reached.

Our examples show that since demand for consumers' goods depends partly on incomes and incomes are determined in part by the prices of the factors of production, every alteration in factor prices (which itself may have originated in a variation of the demand for consumers' goods or in technological changes) must in turn change the demand for consumers' goods, which in turn changes the demand for the factors of

production. Finally, the supply of the factors of production is not a fixed quantity. Within certain limits it may react to changes in factor prices and so evoke again all the reactions that have been described.

It would be comforting to be able to assume that these reciprocal price relationships have a tendency to bring the economy into an adjustment, in which every means of production is employed where it commands the highest price—a state of equilibrium at full employment in which further variations of prices cannot be expected, because there is no longer the opportunity for any supplier of goods or productive services to obtain higher prices in any other part of the economy.

Reality, of course, does not conform to this ideal picture. While there are certainly forces at work which make the economy tend towards such an equilibrium at full employment, there are also disturbing and disquilibrating forces to be reckoned with which prevent the economy from ever reaching or maintaining equilibrium at full employment. And foremost among the disturbing forces are those connected with the supply of and the demand for money.

3. THE SIGNIFICANCE OF MONEY

Our picture of the working principles of the capitalist economy, though grossly oversimplified, shows nevertheless that money plays a most important part in the mechanism of such a system. Money is, indeed, quite indispensable for the functioning of a market economy. But it is, at the same time, a potential source of grave danger. In order to bring out the significance of money in full relief we may reconsider the following points.

(1) The use of money, first of all, divides the exchanging people into sellers and buyers and splits barter into market supply and demand. Supply and demand determine market prices which are exchange values expressed in units of money.

The direction of production is determined according to existing and expected prices: the prices of the means of production—the business man's expenses—and the prices of the finished goods. The difference between these two sets of prices means profit or loss for the producer. According to expected profits or losses production will be expanded or contracted. All production in the private sector of the capitalist economy rests on economic calculation, that is, on the comparison of monetary quantities.

(2) Money is an indispensable condition for the development of a credit market. It is possible to borrow goods in a barter economy against the promise to give these goods or other goods back after a certain period. In this case we should have as many credit markets as we have different kinds of goods which may be subject to borrowing. It would be impossible to have a uniform market for the special economic service involved, namely the exchange of present for future goods. This service is quite independent of the special kinds of goods and can adequately be expressed only by the borrowing and lending of money. The development of a money (or credit) market furthermore is the precondition of the formation of a uniform price for the uniform service that is the object of credit transactions. What people demand and supply on this market is not the disposal of special goods and services but the disposal of money for a certain period of time—the disposal of money by the use of which any other good may be procured. Loans find their ideal expression in money and it is the monetary economy alone in which it is possible to express the price of loanable funds in the form of an interest rate. The interest rate is fixed as a percentage of a sum of money over a period of time and is therefore independent of incidental sums and periods.

(3) One main criterion of the capitalist economy is the free choice of consumption, signifying the facts that everybody may decide within certain limits which goods he is going to

choose, and that production is adjusted to these wishes. Free choice of consumption implies the use of money because free choice of consumption and the always necessary limitation of consumption can be combined only if the purchasing power in the hands of the buyers is disposable in alternative ways and combinations, subject to the limitations imposed by the money prices which have to be paid for the available kinds of goods. A moneyless economy would have to use a system of rationing, i.e., of distributing the social product in predetermined portions. Freedom of choice of consumption would be abolished.

(4) Money may be regarded as a common denominator for subjective valuations on the assumption that the amount of purchasing power spent on a commodity measures objectively the relative importance of satisfactions to the purchaser. This assumption, however, is highly artificial because the money incomes of the different persons are unequal.

(5) In a perfectly working credit market savings are sure to be borrowed by those who want to buy capital goods or to increase their consumption beyond the limits of their current income, provided only that the rate of interest is low enough. Money, however, may turn out to be a disturbing factor in the credit market and in the economy in general. Money may be hoarded and total demand may be reduced with the further consequences of reduced production, unemployment, and a further fall in demand. It may also happen that the lowest practicable rate of interest is not low enough to induce the necessary amount of investment and that money remains idle with consequences similar to those of hoarding. On the other hand money may be dishoarded or artificially created. The creation as well as the destruction of money, dishoarding as well as hoarding, change the basic assumption of the barter economy that supply creates automatically its own demand. It had been assumed for a long time that nothing worse could

happen than the partial overproduction of commodities which would immediately be remedied by the necessary adjustments in relative prices and in production. That there could be a general deficiency in purchasing power was supposed unthinkable. This was unwarranted optimism. Purchasing power can be destroyed with disastrous consequences for the economy just as it can be created with favorable or unfavorable effects depending on the state of employment and numerous other factors.

(6) Among the disturbing effects of money those changes in the general level of prices which are known as inflation or deflation are most obvious. If money is supposed to be a unit of account, its own exchange value should remain comparatively stable. The value of money is expressed by its ability to buy, and this ability is decreased when prices increase and increased when prices decrease. The economic and social consequences of fluctuations in the value of money will be discussed in chapter 2.

4. MONEY IN THE SOCIALIST ECONOMY

Thus, by the use of money, not only is it possible to overcome the clumsiness of barter and to extend the division of labor, but at the same time money is the basis of the pricing process by means of which the economy is guided unless it is planned in every detail with such complete foresight that individualistic economic calculation is rendered unnecessary. It should be noted, however, that, in practice as well as in theory, modern planned economies too have made use of the price mechanism. Lenin, for example, admitted in October 1921 that the Bolsheviks had been greatly mistaken in their belief that they could reach even the initial stage of communism without having passed a period of socialistic calculation and control,³ and Trotsky asserted that a plan has to be

³ Vol. 43 of the Russian edition of Lenin's *Collected Works*, Moscow, 1924-26.

checked and, to some extent, realized through the mechanism of the market. "The blueprints produced by the offices," he admits, "must demonstrate their economic expediency through commercial calculation. Without a firm monetary unit commercial accounting can only increase the chaos."⁴

In a recent discussion of the problem of the possibility of an adequate calculation in a socialist economy uniformity of opinion existed at least about the monetary character of such an economy. Some socialist writers contend that those markets which are today dependent on private ownership of the means of production could be replaced by fictitious markets with accounting prices fixed by public authority so that the whole process of the market economy would be reproduced.⁵ We shall not enter into a discussion of these very complicated problems, but it is noteworthy that no one who has grasped the complexity of the processes of a modern economy has any doubt about the necessity of calculations in terms of money.

Some writers argue that the abolition of free choice in consumption would do away with the necessity of the pricing process.⁶ It is true that the problem is made less complicated if we let a central authority decide what is to be produced. Nevertheless it remains indispensable to have a pricing mechanism without which "it is impossible for an economic system of any complexity to function with any reasonable degree of efficiency."⁷ The scarcity of the means of production does not allow us to produce whatever we want to produce, and it precludes in many cases the use of what may appear to the

⁴ L. D. Trotsky, *Soviet Economy in Danger*, New York, Pioneer Publishers, p. 30.

⁵ E.g. Oskar Lange, "On the economic theory of socialism," *Review of Economic Studies*, Vol. 4, 1936-37, pp. 53-71.

⁶ Maurice Dobb, *Political Economy and Capitalism*, London, George Routledge and Sons, 1937, chapter 8.

⁷ A. P. Lerner, "Economic theory and socialist economy," *Review of Economic Studies*, Vol. 2, 1934-35, p. 55.

technical expert the best technique of production. Even if the aims of production should be determined by a dictator, the allocation of resources according to these aims would have to be the result of the working of a pricing process by means of which it is possible to compare the usefulness of the available resources in different fields of employment.

Thus we may safely conclude that a social economy will remain a monetary economy and that a considerable part of the problems dealt with in what follows will have bearing upon whatever modern economy we want to choose.

Chapter 2

THE VALUE OF MONEY

1. VALUE IN EXCHANGE AND VALUE IN USE

It is the very quality of the medium of exchange that enables us to buy whatever we choose. If the medium could be exchanged for a qualified amount of only one commodity (in which case it would be, in effect, a meal ticket or a theatre ticket but not a medium of exchange), its value would be determined by the value of the commodity in question. Since in reality it may be exchanged for any other good, we have to answer the question: on what does the value in exchange of the medium of exchange depend; how many other goods is a unit of the medium of exchange able to buy?

It is self-evident that the medium of exchange has to have exchange value. Otherwise nobody would take it in exchange for valuable goods. Free goods, goods which are as abundant as pebbles, cannot own the quality of money. It is an essential quality of the media of exchange that they are scarce, that they do not exist in large enough quantities to satisfy every possible desire.

But this does not mean that they have to have value in use other than as media of exchange. If the medium of exchange is a commodity (a consumers' or a producers' good), it does of course have value in use. But it loses this quality or, at least, this quality is not relevant for the time during which it is used as money. For as money it does not directly satisfy human wants.

The so-called "Income Theory" of the value of money assumes that the value of money depends on the importance

which each of us attributes to the last unit of his income, i.e., on the intensity of the desire which the last unit of income can satisfy by being exchanged against commodities.¹ The main objection to this proposition is that the "marginal utility of money" cannot be determined before we know the exchange value of money. It is not possible to overcome this difficulty by the method of an "historical regressus" in which we tie the exchange value of money of to-day to the value of yesterday and so on all the way back to the time when money derived its value from its usefulness as a commodity. It goes without saying that the flimsy connection with the earliest history of money (as established by the historical regressus) cannot and does not explain the value of the money of to-day.

It would be silly to insist upon media of exchange being made out of valuable material and being commodities with use value. It would be as foolish as to insist upon theatre tickets consisting of chocolate which one could eat in case the management should have issued too many tickets.² We see now the reason for this connection with a valuable substance which the medium of exchange is supposed to represent or of which the medium of exchange consists: some people do not trust fully the ability of money to command other goods in exchange, and supposedly they are therefore unwilling to dispense with the possibility of using it as a consumable commodity, for example, as jewelry or teeth.³

¹ This does not exhaust the contributions made by the so-called "income theory." See A. W. Marget, *The Theory of Prices*, Vol. 1, Prentice-Hall, New York, 1938, p. 309.

² See W. Röpke, *Geld-, Kredit- und Börsenwesen*, Spaeth & Linde, Berlin-Vienna, 1930.

³ See, e.g., the characteristic remark by Karl Knies: "If people were not using gold and silver any longer as economic goods to satisfy their desire for jewelry, fancy-work etc. then the precious metals would have to cease to be used for monetary purposes also." *Geld und Kredit*, Vol. 1, Berlin, 1885, p. 322.

But, as a matter of fact, even sceptics accept in normal times media of exchange which are not made of, or are not convertible into, valuable material. They know by experience that they really can get in exchange for money any available good they may choose, the exchange relation being expressed in units of money. Their valuation of money is therefore nothing but a reflected and indirect valuation of the goods which they are able to buy.

2. THE IMPORTANCE OF A STABLE VALUE OF MONEY

Money usually⁴ is the standard of value as well as the medium of exchange in monetary economies. As a standard of value it is apparent that money may perform well or badly, depending upon whether its value in terms of goods and services is comparatively stable or uncertainly and violently fluctuating. "One has only to imagine what would happen to business calculations and plans if the number of ounces in a pound, or of inches in a foot, were . . . variable, and then to remember that, whereas these measures enter only into contracts concerning goods sold by weight or length, the monetary unit enters into every single economic contract of any kind whatever, to get an idea of the extent of the damage to economic efficiency for which a monetary system that is unreliable, or imperfectly understood, may be responsible."⁵ If our statements about the importance of money in the pricing process, economic calculations, credit transactions, and so forth are correct, then it is evident that 'considerable

⁴ Not always, however. During the hyper-inflation in Germany the public turned to substitutes for the standard of value such as the dollar or coffee-rolls. As shown above (pp. 2-3) the medium of exchange and the standard of value are both theoretically and actually separable.

⁵ Barbara Wootton, *Plan or No Plan*, London, Victor Gollancz, 1934, p. 142.

and sudden variations of the value of money (which we refer to when speaking of commodity price inflation or deflation) would seriously impair the usefulness of money as a standard of value.

(1) Changes in the value of money are not of the same relevance for all persons involved. When new purchasing power is created, special groups will obtain the purchasing power, the over-creation of which may cause prices to rise. People with fixed incomes or people who cannot increase the income from their services quickly enough are compelled to reduce either their purchases of goods and services or their savings, while those persons benefit who are able to pay higher prices because they have the disposal of the newly created purchasing power.

(2) The terms of contracts, based on the unit of account, do not vary. This means that in the case of commodity price deflation debtors have to pay back more than they have received in terms of real goods, or that in the case of inflation the debtors may rather more easily liquidate their debts.

(3) If commodity prices increase generally (inflation), profits seem also to increase since the prices of finished products tend to rise faster than the costs of production which were incurred at an earlier time. These profits lead to disorderly markets and miscalculation on the part of entrepreneurs. Many people try to avoid the losses caused by the depreciation of money by buying or producing "real" values regardless of their usefulness in terms of exact calculation. Deflation, on the other hand, if it is a monetary phenomenon and not caused by technological improvements and reduced costs of production, leads immediately to depression. The prices of finished products have the tendency to fall faster than the prices of the means of production which had to be paid earlier. Experiencing losses, merchants and producers reduce their orders, spreading the depressive tendency throughout the economy, whilst increasing unemployment diminishes

further the demand for consumers' goods thus propelling the downward spiral from another point.

(4) Variations in the real value of debts change the cost of financing. The interest rate is a fixed magnitude only as long as the real value of credit contracts does not change. If prices increase generally, the rate of interest appears, in effect, relatively low with the consequence of abnormally high profits and the danger of maladjustments. Deflation on the other hand increases the interest burden and may paralyze the economic process.

(5) It is not so much the general increase or decrease of prices that is dangerous, but the fact that prices do not change in the same proportion. In the case of inflation wages and interest rates may lag behind the general rise in commodity prices to the benefit of debtors and shareholders. The income structure is upset with the result of violent changes in demand and price relations. Changed prices cause changes in production which later may turn out to be entirely unwarranted.

Recent periods of inflation and deflation have provided an abundance of evidence of the validity of the foregoing statements. There is no doubt that a reasonable degree of stability of the value of money is the necessary condition of the satisfactory functioning of the monetary economy. Great variations in the value of money at least should be prevented. It will be shown later, however, that a complete stabilization of the value of money is neither possible nor desirable.

3. THE FACTORS DETERMINING THE VALUE OF MONEY

It is by the expenditure of money that goods are bought in the markets. Logically, then, the value of money to a person depends on the amount of different goods which can be purchased with a given amount of money. This amount is determined by the money prices of the different commodities and services. But this is merely the arithmetical truism that the

value of money stands in inverse relation to the money prices of the things on which it may be spent. It reveals nothing as to the complex monetary and non-monetary relationships actually determining the monetary multiple in which the relative prices of goods and services are expressed.

One decisive factor determining the value of the money unit is the total effective demand on all the markets of the economy. The media of exchange in the hands of the buyers compete with each other and tend to bid up the prices of the supplied goods to the point where the total supply can just be disposed of. The collective demand in terms of money—that is to say, the quantity of purchasing power (the amount of money spent: the flow of money) in a period of time—acting on a given supply of commodities and services determines prices and, in inverse ratio, the value of money.

The total effective demand of an individual is determined by the amount of money which he will spend directly, or indirectly through credit transactions, during a certain period. We will neglect the case of hoarding for the time being. The amount of money spent during a *period* of time is much greater than the amount of money which at any *moment* is at the immediate disposal of the individual. This being true for every individual or firm we may conclude that for the social economy the total effective demand during a period of time, say a year, is much greater than the amount of money in circulation. During successive periods of time the individual economy receives a succession of money quantities which may, with due attention to defects in the analogy, be regarded as a stream of money which flows more or less regularly and whose units are sooner or later spent and replaced by other units coming in. If we follow the movement of a single unit, we can see that it is spent several times during a given period going from one person or firm to another. It is the basic function of a medium of exchange to be respent. In contradistinction to commodities and services a medium of exchange reappears time and

again on the market. Its performance is analogous to that of a switching locomotive which may be seen moving back and forth in the train-yard drawing different sets of cars from one position to another. We characterize this peculiar quality of money in speaking of the velocity of circulation of money.

Going back to the statement that commodity prices and the value of money are related to the amount of money expenditure for goods and services, we may add that this amount is the product of the quantity of money times its velocity of circulation. We now recognize a fatal flaw in the opinion which, in several versions, continues to find expression in monetary discussions, to the effect that the value of money is peculiarly related to the quantity of the medium of exchange which exists or circulates in the economy. Such a conclusion ignores the velocity of monetary circulation in the relationship between money and prices. The quantity of goods to be exchanged and the frequency with which goods are exchanged in a given period of time are further important factors in the determination of the value of money.

In considering the quantity of the goods which have to be exchanged (the so-called trade volume) we see again that monetary problems and price problems are closely inter-related. As in any other case of pricing we have to consider demand and supply. In this special case we are interested in the total supply of goods and services which are intended for sale in the different markets of the economy during a certain period of time. The value of money is expressed by prices which are determined by many price-making processes. And it is in this way, by influencing these price-making processes, that changes in the monetary system affect the value of money and at the same time, the whole structure of relative prices. There is not, as so often assumed, an immediate and direct influence of changes in the supply of money on the economy as a whole, but only numerous smaller changes in single but interrelated price-making processes.

The wrong habit of looking for such an immediate causal connection between changes in the quantity of money and the economic consequences of such changes is due to the tendency to think in terms of an average of prices as a precise expression of the value of money. There is, in fact, no other way of expressing the value of money than by the use of such averages of prices, and for some purposes the practice is defensible. Yet it becomes dangerous if a general average of prices dominates the analysis of monetary problems and diverts attention from the reality that the price structure does not respond to monetary changes as a unit, but that individual prices and their variations are the basic data of the price analysis, so that the consequences of monetary changes have to be worked out in these variations.

We value money according to the quantity of goods the unit of money is able to buy. Since owners of money have the choice among all the different goods available, the purchasing power of money is determined by the prices of these goods. The lower the prices the greater is the quantity of goods the unit of money can buy, the greater therefore the purchasing power of money, and vice versa. In speaking of prices in the group sense we can only mean an average level of prices or the value of money which, as "purchasing power," is the reciprocal of this "level of prices." That the concept "general level of prices" is a very problematic one will be shown later.

4. THE EQUATION OF EXCHANGE

The relationship between the quantity of money (M), its velocity of circulation (V), the trade volume (T), and the general price level (P), can be expressed by the equation $MV = TP$, or $P = MV/T$.⁶

The formula is only a simple way of expressing the truism that the average level of prices depends on the quantity of

⁶This is the famous "Fisher" quantity equation. See Irving Fisher, *The Purchasing Power of Money*, New York, Macmillan, 1911.

money and its velocity of circulation in relation to the total amount of sale transactions; that an increase in the quantity of money or an increase in its velocity of circulation work in the same direction, and that therefore an increase in the quantity of money may be counteracted in its effect on prices by a decreased velocity of circulation; that an increase in the trade volume (quantity of money and velocity of circulation remaining unchanged) leads to a decreased price level, and that therefore a stabilization of the price level with an increased trade volume requires either an increased quantity of money or an increased velocity of circulation.⁷

The importance of the equation of exchange must by no means be overrated. Otherwise we are bound to get into difficulties. We have to note that M refers to a point of time, whereas V refers to the turnover of money during a period of time; consequently the expression MV would involve the inconsistency of multiplying non-comparable factors unless the assumption is made that M is an average amount of money in circulation during the period in question or is the same amount during the whole period. But these assumptions are not compatible with all possible purposes of the equation.

Many writers have pointed out that the equation needs the qualifying phrase "*ceteris paribus*" and that this assumption

⁷ Two examples may illustrate these theoretical statements. The case of the stabilization of the German mark in 1923 shows the substitution of M for V . The immediate cause of the hyper-inflation in 1923 was not the increase in M but the increase in V , everybody spending the depreciating money as quickly as possible. To stop that process it was necessary to reduce the velocity of circulation of money. The newly issued "rentenmark" was a psychological trick. The rentenmark's backing by the German soil and its hoped-for stability induced people not to spend these newly printed bills right away and this very decrease in V made room for an additional amount of M which could be created with no further increase in P . The case of the prosperity of the nineteen twenties in the United States shows that a considerable increase in T can make room for an increased M at a nearly stable P .

of "other things being equal" is unrealistic, since variations in one factor may influence the other factors. It is true that oversimplifying statements have to be avoided, but it is equally true that the equation remains logically correct as long as these repercussions are only possible, and not necessary, consequences. The equation does not indicate which repercussions may be expected, but it does show the direction of the influence of each factor on the value of money, though not whether its variation was original or the result of a change of other factors.

The greatest danger in the use of the equation of exchange is that it draws too much attention to general magnitudes.⁸ It purports to establish a direct causal connection between the total stock of money, the average velocity of circulation, the total volume of trade and the general price level, without considering the important fact that it is only through many single price-making processes that the monetary factors can influence the economy. The equation of exchange is incapable of expressing the changes in the structure of *relative* prices caused by monetary factors. These changes, and especially the disproportionate variations of different prices, may be of much greater importance than the variations of the general price level.

These qualifications should be kept clearly in mind in any use that is made of the equation of exchange. The equation serves as a rudimentary outline of the problems involved.⁹

⁸ See F. A. Hayek's excellent criticism of the equation of exchange in *Prices and Production*, New York, Macmillan, 1932, p. 3. See also Lester V. Chandler, *An Introduction to Monetary Theory*, New York, Harper and Brothers, 1940, chapters 2 and 3.

⁹ "The 'quantity equations' themselves are nothing more nor less than shorthand expressions designed to indicate the nature of the variables whose operations can be shown to influence prices. Each of the variables in these equations is merely a chapter-heading—a rubric for detailed analysis designed to explain why the variable in question will be of a different magnitude under different circumstances, and to indicate the circumstances

Our aim, however, is not only to analyze the determination of the purchasing power of money, but also to elaborate the different ways in which money influences the economy.

under which, and the sequence in which, changes in the magnitude of one variable may be expected to be associated with changes in other variables "

A W Marbet, *The Theory of Prices*, p 81

Chapter 3

THE QUANTITY OF MONEY

1 FULL BODIED MONEY

Historians and anthropologists tell us of the many different commodities which have been used as media of exchange. These media of exchange were valuable not only because of their command over other goods in exchange but also because in their non monetary capacities they possessed market value.

Among these commodities which have served as media of exchange the precious metals are especially prominent. Their suitability is not entirely due to their ornamental and industrial usefulness although this may have facilitated the early evolution of the metals as media of exchange. Much more important are the following qualities: (1) The precious metal (gold or silver) is relatively scarce and therefore so valuable that small units in weight command large quantities of goods in exchange. As a medium of exchange it may be easily transported. (2) The precious metal is divisible into small units without any loss in value. As medium of exchange it may be minted easily and thus be adjusted in a convenient way to the values of the goods which have to be exchanged. (3) Different pieces of the same weight are identical in value, a fact of importance for the practical identification of the medium of exchange and the standard of value. (4) The precious metal is practically indestructible in use. (5) The value of the precious metal remains comparatively stable at least over short periods. It will be shown in chapter 9 below however that this point should by no means be over emphasized.

Sometimes in the past people have made payments by weighing out the metal. Designations like pound, mark, franc, rouble can be traced back to this practice. But it is naturally much simpler to cut the metal in pieces of equal weight and to put a stamp on them which indicates the weight. The resulting coin is "full-bodied"¹ money as long as it has the same value whether it is used as a medium of exchange or whether its metal is used for industrial purposes.

The identity of value in both cases is guaranteed if two conditions are fulfilled: if any one may legally melt the coin and sell or use the metal; and if everyone has the unrestricted right to have the metal coined. Under these conditions the value of the coin cannot be higher nor lower than the market value of the metal of the same weight. If it should be higher, people would buy the metal and have it coined, and the increased quantity of money would tend to press the value of money down to the value of the metal. If the value of the coin should fall below the value of the metal, people could profit by melting the coins and selling them in the more valuable form of uncoined metal. With the decrease in their quantity the value of the coins would increase.

These considerations must not lead to the false impression that money has to be a commodity and could not possess value otherwise. Nothing is required except that the medium of exchange should be really capable of commanding other goods in exchange. If, for some reason, people are no longer allowed to have metal coined, and if therefore the quantity of money is reduced either absolutely or in relation to the trade volume, the value of formerly full-bodied money may easily grow beyond the value of its metal content. The coin, now, is worth more than the metal out of which it was created.

¹ D. H. Robertson defines full-bodied money as "money, whose value is not materially greater than that of its component stuff." *Money*, New York, Harcourt, Brace and Co., 1929, p. 50.

Therefore it is no longer full-bodied but is capable of commanding in exchange more metal than it contains itself.

2. TOKEN MONEY

Once we realize that the value of the medium of exchange can differ from the value of its substance and be worth much more, the superficial form of the medium of exchange becomes a matter of minor importance. As a matter of fact the superficial form may be reduced to a piece of paper with something printed on it (paper money). It makes no difference whatsoever how far the value of the medium of exchange surpasses the value of its base. To paraphrase Irving Fisher: if a pillar is not high enough to support the ceiling, it is a matter of indifference how tall it is at all. If money need not be full-bodied, it need not have any value at all as a commodity "for use" (other than exchange).

Money which is not full-bodied is representative or token money, that is, "money, whose value is materially greater than the value of the stuff of which it is composed."² Token money is distinguished from full-bodied money not only in this respect but also by the fact that its quantity is managed arbitrarily and not (or not only) determined by the market price of the available amount of the metal. Token money, therefore, is a variety of managed money—money, whose conditions of issue are subject to arbitrary decision.

This management may consist of the rule that token money has to be limited to not more than a certain multiple of the amount of full-bodied money in reserve, or that it has to be redeemable at any time into full-bodied money (i.e., token money may be convertible money). Token money is thus linked to full-bodied money and cannot be increased indefinitely. A convertibility of this kind does not mean a reserve

² D. H. Robertson, *Money*, p. 50.

of 100 per cent in full-bodied money against the token money. If this were the case, it would be much better to speak of representative full-bodied money or certificates. Usually only a small amount of convertible token money is presented for redemption, and the average amounts thus presented during a given period of time tend to be a relatively stable magnitude. This magnitude determines the minimum of full-bodied money which has to be kept in reserve against convertible token money. The quantity of full-bodied money in reserve, then, together with the reserve ratio determines the possible creation of token money.

It should, however, be clear from the beginning that the limitation of the quantity of token money may as well (and in fact much more simply) be achieved by the mere decision to keep it limited. In this case we speak of fiat money which is managed "but not convertible by law into anything other than itself."³

3. COMMON MONEY AND DEPOSIT MONEY

Both full-bodied money and token money are common money or money in the strictest sense of the term (pocket-book money). Common money is money which will be accepted by everybody without special arrangements. We use common money to pay for a railway ticket at the ticket office where checks in all probability would be refused. There are in fact many cases in which payments by check would be impossible or difficult because the use of checks requires special arrangements and knowledge on the part of the recipient of the honest intentions and financial capacity of the person

³ See J. M. Keynes, *A Treatise on Money*, Vol. 1, p. 71. Mr. Keynes distinguishes managed and fiat money, fiat money having "no fixed value in terms of an objective standard." We regard fiat money as a special kind of token money.

tendering the check. Common money will usually be accepted without hesitation by everyone.

Very often, however, we do not need common money to make payments. We pay by check and the check is seldom converted into common money. Most check payments are offset, one against another, in the banking system and do not lead to payments of common money. Yet there is no doubt that in these cases the function of the means of exchange has been fulfilled. If we consider demand deposits (i.e., check accounts) as a right to withdraw common money from the banks without previous notice, we may as well say that claims on common money are as useful as common money itself. This is an amazing fact for many people, for, as a distinguished writer once said, nobody could ride on a claim on a horse.⁴

Whether we call these claims money, money substitutes, circulating media, credit money, bank money, deposit money or check book money—there is no doubt that they may be used as media of exchange and therefore as money. We shall use the terms deposit money or check book money.

But a new difficulty arises regarding the limitation of the quantity of money if claims on common money are able to perform the function of money. This is indeed a most important question which we shall answer in chapters 4 and 5. At this point we may confine our statement to the following remarks:

We assume that the amount of common money and of central bank deposits, which we consider as claims on common money, is regulated by the monetary authority. Central bank deposits are (in the main) deposits of the commercial banks with the central bank which the former think it advisable to maintain or which they are required by law to maintain. Though these deposits are not identical with common money,

⁴ See Joseph Schumpeter, "Das Sozialprodukt und die Rechenpfennige," *Archiv für Sozialwissenschaft und Sozialpolitik*, Vol. 44, 1917-18.

they are supposed to be convertible into common money. The central bank's position towards the commercial banks is exactly the same as the commercial banks' position towards their depositors; that is, it has to stand ready to pay out common money.

Assuming that the monetary authority is able to regulate both the amount of the commercial banks' deposits with the central bank (central bank deposits) and the reserve ratio (that is the ratio of commercial bank deposits to central bank deposits), then it is obviously impossible for the commercial banks to expand their loans and investments (and therewith their deposits) indefinitely. The commercial banks, in other words, are not able to create an unlimited amount of deposit money. If we assume that the monetary authority regulates both the amount of common money in circulation and, indirectly, the amount of deposit money, it regulates the total amount of money.

It will be shown in chapter 4 how deposit money is created within the commercial banking system and how an increase in central bank deposits may lead to an expansion of deposit money the upper limit of which is determined by the commercial banks' deposits with the central bank and the customary or prescribed reserve ratio.

4. THE TOTAL QUANTITY OF MONEY

We have seen that the total quantity of money can be regulated by the monetary authority which issues the common money and determines, by increasing or decreasing central bank credits and by establishing certain reserve ratios, the maximum amount of deposit money which the commercial banks are able to create through loans and investments.

In trying to ascertain the total amount of money *in circulation*, we should distinguish between "basic" or reserve money

and current media of exchange.⁵ Basic or reserve money consists of gold, deposits of the commercial banks with the central bank, and coin and paper money held by banks. Current media of exchange are currency (coin and paper money) outside of banks, and demand deposits in commercial banks. Since basic money serves only as "backing," it is, for the time being, not available for use by the general public as money, and is, therefore, not to be included in *M*.

Suppose that the monetary authority has \$400 worth of gold and that one-half of this amount circulates as gold coin. Assume, furthermore, that the monetary authority uses its remaining gold in equal parts as a 40 per cent reserve against (a) the token money (central bank notes) which it has issued and (b) the central bank deposits of the commercial banks. A gold reserve of \$100 authorizes the central bank to issue \$250 in token money (central bank notes) since \$100 is 40 per cent of \$250. Similarly the commercial banks can maintain \$250 in deposits with the central bank, against which the central bank has also to hold a gold reserve of 40 per cent. Assuming now that the commercial banks have to hold a central bank reserve (a central bank deposit) of 20 per cent against demand deposits (check book money) we can see that the amount of check book money (the people's demand deposits) could be as large as \$1,250, that is, five times the sum of central bank deposits.

The total amount of money in circulation in our example would be \$1,700, viz., \$200 in gold coin plus \$250 in token money plus \$1,250 in deposit money. The basic money (the gold reserve "behind" the token money and the central bank deposits, and the central bank deposits "behind" the deposit money) should not be regarded as part of the money in

⁵ Woodlief Thomas, in *Banking Studies* by Members of the Staff, Board of Governors of the Federal Reserve System, Washington, D.C., 1941, pp. 297-303.

circulation but determines, together with the reserve requirements, the total amount of money in circulation (Fig. 1).

When the circulation of gold coin is not permitted, the monetary gold can be used in its entirety for reserve purposes. If gold reserve requirements are abolished and token money

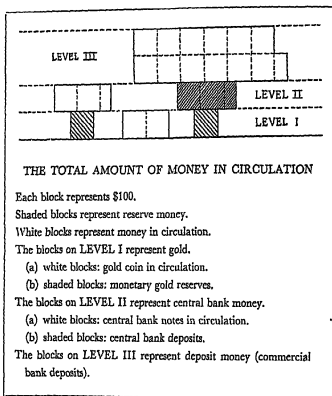


FIG. 1

is no longer convertible, token money becomes fiat money, its amount being "managed" by the monetary authority. The monetary authority in this case is free to create as much token money as it deems advisable and central bank deposits are probably not subject to limiting reserve requirements either.

The monetary authority would control the supply of money independently from so "uncontrollable" a factor as a gold reserve which varies with fluctuations in foreign trade or foreign lending. (This will be explained in chapter 12). But even in this case the major part of the monetary circulation would be actually supplied by the commercial banks. Only on the assumption that the present system of fractional reserve requirements for commercial banks is replaced by a 100 per cent reserve system, would the monetary authority, determining the amount of fiat money and of central bank deposits, completely control the money supply to the exclusion of the possibility of an expansion of credit by the commercial banks.

It must be understood that the reserves and reserve ratios in our example do not determine the total amount of money in any causative sense. Whether commercial banks can expand credit through loans or investments (and thus create deposit money) does not alone depend on the availability of the necessary reserves (central bank deposits), but also on the existence of a sufficiently large demand for these credits at certain rates of interest.

A monetary system in which one kind of money is used as a fractional reserve for a second kind which, in turn, is a fractional reserve for a third kind, can be likened to an inverted pyramid. The basis of this pyramid, the monetary metal (gold), has been called "supercharged" money to indicate that its expansion may under certain circumstances (depending on reserve ratios, interest rates, and profit expectations) lead to a much greater expansion of the total amount of money. For the same reason the central bank deposits have been named "high powered" (basic) money in comparison with deposit money or check book money, upon the expansion of which no further issuance of money can be based.⁶

⁶ See Irving Fisher, *100% Money*, New York, Adelphi Company, 1936.

Chapter 4

DEPOSIT MONEY

1 THE PROBLEM

It might seem unwise to spend much time on the regulation of the different kinds of common (or pocket book) money in view of the overwhelming quantitative importance of what we have called deposit money (or check book money). Nevertheless the old fashioned approach of the preceding chapter is more illuminating and realistic than are such abstract models as those used by R. G. Hawtrey,¹ Eric Lindahl² and others, who assume an economy in which only deposit money exists. These models are of theoretical interest, but they neglect the basic problem of the creation of deposit money. Whatever the quantitative importance of deposit money may be, the fact remains that the limitation of its quantity, and its connection with and proportion to the historically antecedent common money, has to be explained. Common money possesses a degree of importance in modern economic systems which, far from being belittled, is magnified by its relatively small amount.

The basic assumption in studying deposit money is the concentration of most of the private reserves of common money in the commercial banks, where claims on common money are translated into another means of exchange, that is, deposit money, in an amount which may greatly exceed that of the

¹ R. G. Hawtrey *Currency and Credit* London, Longmans, Green & Co., 1928

² Eric Lindahl *Studies in the Theory of Money and Capital*, London, G. Allen & Unwin, 1939

original common money. Consequently the services of the original amount of common money are multiplied. This result has sometimes been regarded as the equivalent in effect of a corresponding increase in the velocity of circulation of common money.³

Before we analyse this process of multiplication, we have to observe that the concentration of cash reserves of individuals and firms in the commercial banks is in itself a means of economizing the total reserve of common money in the whole economic system. This is true even if we disregard the development of deposit money and suppose that all payments are made in cash, that is, in common money. The reserves of common money which the banks find it necessary to maintain in order to meet the demands of depositors are smaller than the corresponding aggregate amount of idle cash which the members of the public would have to keep if banking facilities were not available. The reason is that the day-to-day withdrawals of common money from the banks by members of the public amount to only a fraction of the total of their deposits, and since this behavior is comparatively stable and predictable, the average amount of cash reserves necessary to secure the liquidity of the banks is the corresponding proportion of their deposits. The banks, in effect, mobilize the idle cash balances which the members of the public would otherwise keep in their own possession. The concentration of cash reserves (that is, reserves of common money) leads, according to the law of averages, to a process of economizing the reserves which enables the banks to use the accumulating idle balances of common money to extend credits to, and thus create deposit accounts for, persons who did not previously deposit common money with the banks. This process clearly has the effect of increasing the velocity of circulation of money and will be discussed at length in chapter 6.

³ Knut Wicksell, *Lectures on Political Economy*, Vol. 2, *Money*, London, Macmillan, 1935.

The development of check payments and of interbank check clearing has progressively reduced the average amount of common money relative to demand deposits which the commercial banks must be prepared to pay out. The commercial banker can feel secure, from the standpoint of liquidity, in making loans or investments equivalent to most of the cash which otherwise would not be withdrawn by depositors and customers. He may even look upon the accumulating amount of common money, the circulation of which is supplanted by the use of claims on common money (checks), as if it were "savings," or purchasing power which is not intended to be spent. At any rate it is easily understandable that the lending out of accumulating cash might not necessarily strike the bankers as a "creation" of money since it would seem to be already existing common money which is put at the disposal of the borrower. This impression explains why so many bankers have persistently denied that they have the power to create money, stressing instead their function as pure intermediaries, whilst some other bankers have emphasized the banks' function of credit creation.

If the use of common money in making payments is supplemented by the use of claims on common money (checks), it is obvious that no one relinquishes the right to use his purchasing power whenever he wishes to do so, and that nevertheless a large part of the original amount of common money is released from circulation or from private cash reserves. Whenever this amount of common money is made active through an expansion of credit by means of bank loans and investments, the total amount of purchasing power is increased, and credit has clearly been created.⁴ The main question is how far the creation of credit can go.

Again we meet conflicting conceptions among bankers and students. One answer holds that any one individual bank in a

⁴ See the very clear statement of the problem in Hans Neisser, *Der Tauschwert des Geldes*, Jena, Gustav Fischer, 1928, p. 55.

system composed of many banks exhausts its ability to create credit whenever it has made additional loans equivalent to the amount of common money which it does not need as cash reserve. This implies that the bank, after having expanded loans or investments to about the full amount of its "excess" reserves of common money, will lose this amount through cash withdrawals by the borrowers and payments to other banks whose claims on the first bank increase in consequence of the borrowers' check payments.

Another answer is that the bank can fully utilize its excess cash reserve only by expanding loans or investments to the extent of several times the amount of these excess reserves of common money. This theory assumes that the borrower's new deposit account resulting from the loan is, once created, absolutely identical with deposit accounts created by a deposit of common money. In both cases "claims on common money" rather than common money as such are immediately transferred, so that a relatively small proportion of cash to deposits seems to be sufficient to assure the bank's liquidity. Or to put it another way: the bank would be unable to exhaust its excess cash reserves unless it created several times their amount in deposit claims on common money.

For the solution of this problem it is necessary to distinguish two types of demand deposits and also to distinguish between what happens in the case of one individual bank as contrasted with the whole commercial banking system.

2. PRIMARY AND DERIVATIVE DEPOSITS

Combining suggestions made by Professor C. A. Phillips⁵ and Mr. J. M. Keynes⁶ we distinguish primary and derivative or passively and actively created deposits:

(1) A bank can "create" deposits *passively* against the receipt of liquid resources (common money or checks and other claims

⁵ C. A. Phillips, *Bank Credit*, New York, Macmillan, 1920, p. 33ff.

⁶ J. M. Keynes, *A Treatise on Money*, Vol. 1, chapter 2.

on common money) from its depositors. These are *primary* deposits, arising from the actual deposit of cash in a bank. It is important to note that these passively created primary deposits have the true character of individual money reserves entrusted to the banks to be drawn upon and replenished at the will of their owners. The inflow and outflow of common money are supposed nearly to balance for a large number of reserves, such as those held as deposits in commercial banks, and the banker knows that the "creation" of this kind of deposit does not lead to a greater average outflow of cash than is indicated by a ratio which is ascertainable from experience. Even if incoming and outgoing cash should tend to balance almost exactly, the banker would be unlikely to do without a reserve against possible unusual differences.

The primary deposits, therefore, being deposits of common money for reserve purposes, do not, as a rule, lead to an equally great outflow of cash in the near future. On the contrary, even the fact that depositors may withdraw part of their money in cash over the counter would not tend to diminish the bank's cash holdings, were it not for irregularities in the average inflow and outflow of cash due to payment habits and unforeseen events. These irregularities necessitate a minimum average cash reserve against primary deposits, which could not be "created" safely if the bank failed to keep in reserve a certain percentage of the received common money. The necessary reserve ratio depends on the magnitude of these irregularities in the flow of common money rather than on the numerical ratio of cash payments and check payments.⁷

⁷ To avoid as far as possible merely institutional questions we call "cash reserve" any reserve of actual cash or claims on cash in the form of deposits at the central bank. The concentration of the commercial banks' cash reserves at the central bank economizes again the sum total of common money which has to be held in relation to a given amount of deposit money. In using the more general expression "monetary authority" we refer in the main to the central bank.

(2) The bank can create deposits *actively* by creating claims against itself in favor of a borrower or of a seller of securities acquired by the bank.⁸ These actively created deposits are *derivative* deposits,⁹ arising directly from loans or securities purchases. The total amount of purchasing power at the disposal of the community is clearly increased and the creation of derivative deposits is identical with what is commonly called the creation of credit.

The derivative deposits are of a peculiar nature. Not only do they differ from primary deposits in the way they are created (actively instead of passively); they also differ in their consequences for the creating bank, the banking system and the whole economy. Being created in connection with loans or investments these derivative deposits do not have the character of individual reserve accounts in the sense which was attributed to primary deposits. A derivative deposit is " 'made' only to be 'withdrawn,' is subject during its comparatively short and limited existence, to sharp and pronounced changes in magnitude."¹⁰ There are, it is true, cases in which derivative deposits serve essentially the same "liquidity prefer-

⁸ Keynes, *op. cit.*, p. 24.

⁹ Phillips, *op. cit.*, p. 40.

¹⁰ Phillips, *op. cit.*, pp. 41-42. Assuming that a commercial bank has excess reserves of 1 million dollars it may accept a borrower's promissory note and create a deposit account for him, i.e., a promise to pay on demand 1 million dollars. The balance sheet of the bank would show the following changes, barring the complications arising from the payment of interest to the bank. First there would be an increase in loans (assets) and in demand deposits (liabilities). Then the borrower would spend the money for the purchase of goods from people with deposit accounts in other banks. Demand deposits as well as reserves would be reduced by an equal amount of 1 million dollars. On the asset side of the balance sheet 1 million dollars of loans have replaced 1 million dollars of cash reserves. Shortly before the loan falls due the borrower receives payments from his customers who have their accounts in other banks. These payments increase his deposit account as well as the reserves of the bank by 1 million dollars. Finally the borrower pays back the loan and the bank's original status is re-established through the extinction of 1 million dollars of loans and 1 million dollars of demand deposits.

ence"¹¹ as primary deposits. As a rule, however, the loans are made to be used in purchases of commodities and services, and the difference between primary and derivative deposits is therefore about the same as the distinction between "money reserves" and "working capital." Derivative deposits result from a demand for credit rather than for money reserves, and the expectation is that they will be spent right away, whereas primary deposits serve their owners as a reserve balance and are depleted and replenished in a more or less regular manner individually and even more so on the average.

It is true that for a particular bank the cash inflow and outflow connected with derivative deposits could conceivably be exactly equal after a period of expansion (or contraction) of the bank's derivative deposits, during which period the public's cash requirements would undoubtedly have increased (or decreased). The repayment of loans leads to an inflow of cash which may exactly balance the new outflow. This, however, would merely mean that the sum total of derivative deposits would be kept equal, while it is our problem to explain how an increase in derivative deposits comes about and how far it can go.

The nature of derivative deposits is such that they tend to be spent promptly by the borrowers, and (although this extreme result is unlikely to be typical and is often ruled out by explicit agreement between the bank and its borrowers) the bank may be called upon to pay out the entire amount which it created as derivative deposits, in the form of cash payments over the counter or in the form of unfavorable (debit) balances at the clearing house.

If the bank does not lose an amount of cash approximately equal to the newly created derivative deposits, this will be due to one of the following two causes.¹² (1) It may be, as

¹¹ See chapter 6, p. 74f. below.

¹² See especially Professor Phillips' excellent treatment of the problem in his well known chapter 3 of *Bank Credit*, "The philosophy of bank credit."

already indicated, that some derivative deposits are used by their holders as reserves just like primary deposits. In many cases at least part of the derivative deposits will be held for such purposes, even if the banks should not require such a policy on the part of the borrower. (2) Some of the derivative deposits may be used in making payments to persons who have their accounts with the same bank. Cash transfers are not required in these cases.

As long as the outflow of cash remains below 100 per cent of the newly created derivative deposits, the bank may increase loans to a greater amount than its original excess reserves of common money. Generally speaking the bank may create derivative deposits to such an amount that the cash outflow over the counter and to other banks can just be met by the available amount of cash in excess of that needed for reserve purposes.

3. MULTIPLE CREDIT EXPANSION IN THE COMMERCIAL BANKING SYSTEM

The commercial banking *system*, in contradistinction to an individual bank in the system, can create derivative deposits up to several times the amount of an original addition to its cash holdings. An individual bank, as a result of creating *derivative* deposits, loses cash to other banks; this cash transfer within the banking system has the effect of a passive "creation" of *primary* deposits, thus opening the possibility for a further creation of *derivative* deposits by the banks receiving the cash. As these banks "in turn expand their loans, again part of the additional reserves which they have previously gained will pass over to other banks, until, in the end, the increased reserves are spread over the system as a whole, supporting a larger volume of loans and deposits."¹³

¹³ Committee on Finance & Industry Report (*Macmillan Report*), London, H. M. Stationary Office, 1931, p. 12.

Assuming that changes in the rate of interest suffice to bring forth a sufficient demand for loans or that the banks are prepared to invest any unneeded reserve funds in securities, we come to the conclusion that under given conditions, particularly with respect to the reserve ratio, an original amount of new cash reserves of the banking system must lead to a multiple expansion of the amount of deposit money, although the loan expansion of an individual bank is certainly limited to an amount which, at the most, can only slightly exceed its original excess reserves.

A simplified example will illustrate the process by which the multiple credit expansion by the banking system, through the medium of the diffusion of excess reserves through the system, is consummated notwithstanding the narrowly limited loan expansion possibilities of the component individual banks. Let us assume that \$100 of excess reserves in bank *A* enable the creation of \$100 of derivative deposits through the extension of loans. The borrowers' check payments of \$100 to customers of bank *B* lead to a "creation" of \$100 of primary deposits in bank *B*. Assuming the customary (or legal) reserve ratio to be 10 per cent, the excess reserve of bank *B* and, therefore, the approximate amount of its actively created derivative deposits is \$90. The check payments by borrowers from bank *B* to customers of bank *C* lead to \$90 of primary deposits and to excess reserves and derivative deposits of \$81 in bank *C*, etc.—until the original \$100 of excess reserves are distributed among many banks as a 10 per cent reserve basis for approximately \$1000 of derivative deposits.

The nature of the process of collective credit expansion in the commercial banking system makes the individual commercial banks each expand credit at about an equal rate. It is not likely that one individual bank will go far ahead or stay far behind the average behavior of the group because of the pressure of cash movements which will encourage or check the expansion of credit whenever the individual bank steps too

far out of line. If an individual bank fails to keep up with the general rate of credit expansion it will receive more cash than it loses and it will, therefore, accumulate excess reserves which it will tend to loan out. If an individual bank expands loans or investments more rapidly than other banks, it will lose cash, may not be able to fulfill the reserve requirements and will tend to reduce its loans or investments.

As long as all banks expand credit in step, they will not individually lose cash in excess of the amount needed to take care of the increased amount of cash payments over the counter which will necessarily accompany an additional creation of bank money because of the fact that a certain proportion of payments made by the borrower always has to be done in cash. Thus even a perfectly parallel creation of derivative deposits by all the individual commercial banks will not only decrease the ratio between deposits and cash reserves, but will actually drain part of these cash reserves into an increasing cash circulation outside of the banks. It is true that the common money flowing into circulation will have the tendency to come back to the banks when the loans are due. This, however, does not alter the fact that the *expansion* of credit increases the circulation of common money, because the resulting increase in the amount of business turnover involves cash payments, and correspondingly decreases the available cash reserves.

This drain of common money into circulation outside of the banks is the decisive factor limiting the total amount of deposit money which the commercial banking system will be able to create. Assuming that the commercial banks are not allowed to create their own common money (bank notes), it is, then, the monetary authority managing the available amount of common money which ultimately limits the creation of deposit money. If this management could be made to function on the basis of a fixed reserve ratio in such a way that an expansion or contraction of the amount of common money

would always cause a definite multiple expansion or contraction of the amount of deposit money, there would be no additional problem in the technique of monetary policy beyond the managing of common money. Even if such a rigid mechanical relationship might be desirable, however, it is practically unattainable as our later analysis will demonstrate.

4. THE NATURE OF RESERVES

In order to simplify our analysis of the creation of deposit currency, we have assumed that the commercial banks are bound to have a certain reserve of common money. As already pointed out in chapter 3, it is in reality not common money in their tills but central bank deposits upon which the commercial banks base the creation of deposit currency.

It seems advisable to consider somewhat further the functions of central bank deposits since the problem of the creation of deposit currency hinges upon the reserves of the commercial banks.

Generally speaking, reserve funds are the banks' most liquid assets—common money and, above all, deposits with the central bank. A second line of defense consists of those earning assets which can most readily be turned into cash by their sale to other banks and financial institutions or to the central bank.

The size of a bank's reserve depends not only on the number of depositors and their behavior and on the nature of the bank's operations, but also on the structure of the whole banking system. The reserve would have to be very large if the bank should have to depend exclusively on its own liquid funds in case of emergency. By pooling the scattered reserves of individual banks, the law of large numbers is applied in a way which reduces the total amount of reserves needed. One bank or a group of banks can in case of emergency be supplied with the necessary funds from a common reservoir. However, if this pooling should be done in the commercial banks of the

financial centers of the country, the "insurance" principle¹⁴ would not work in case of a nation-wide emergency, even though it would work if the demands for increased reserves were always localized and synchronized in such a way that interregional excesses and deficits would nicely balance. A simultaneous nation-wide demand for reserves could not be met by shifting reserves to the point where they would be most urgently needed because they would be needed everywhere at the same time. This situation can only be met with certainty if a monetary authority exists which can create common money. The commercial banks, therefore, must not only concentrate their reserve funds in the central bank in order to make use of the pooling principle but also in order to be able to obtain an increased total supply of common money to meet a nation-wide demand, in which case the pooling principle alone would not suffice. The commercial banks must be able to obtain additional reserve funds when needed and the only place where they can get them is the central bank which has the power to create common money.

The function of the central bank as the keeper of the pooled reserves of the commercial banks and as the creator of additional reserve funds is the basis of its power to influence the credit policy of the commercial banks. An elastic reserve system is necessary, furthermore, if legal reserve requirements are not to involve a foolish contradiction, for it is senseless to force the commercial banks to hold minimum reserves which must not be depleted under any circumstances without providing them with an opportunity of obtaining additional reserves in emergencies. These problems will be taken up in chapter 5.

¹⁴ See W. R. Burgess, *The Reserve Banks and the Money Market*, New York, Harper and Brothers, 1936, chapter 3.

Chapter 5

MANAGING THE QUANTITY OF MONEY

1 CREDIT CREATION AND THE EXPANSION OF THE SUPPLY OF MONEY

In this chapter we shall be occupied with the regulation of the quantity of money. We do not yet try to throw light on the difficult problem of the aims and standards of monetary policy, nor do we propose to describe the institutional set-up of different monetary systems. Our sole concern is a problem of technique which is common to all modern exchange economies when the quantity of money is to be managed. Our assumption is simply the existence of a central bank which monopolizes the creation of common money and serves as a reserve depository for the commercial banking system.

In the case of a purely metallic currency the quantity of money takes care of itself. A relative shortage of money decreases commodity and factor prices in general and, therewith, the cost of production of the monetary metal whilst the price of the monetary metal, which is fixed by legal authority, remains constant. These conditions lead automatically, though with a considerable time lag, to an increased metal production and money supply. Conversely, in the case of a relative oversupply of money the same process results in an automatically decreased metal production and money supply. That such an adjustment would fail to satisfy the demands of a modern monetary system is evident from the fact that the technical data of the monetary metal production would remain an independent and largely uncontrollable variable.

The real problem of managing the quantity of money begins with the increase of the total amount of money over and above

the monetary metal supply. Token money as well as deposit money has been called credit money to indicate a kind of money which is not supported by the use-value of a commodity, being dependent for its value solely upon the confidence of the public in the trustworthiness of its creator. It cannot be denied that such an element of "credit" does enter into our problem. It would be a mistake, however, to carry the idea of a "credit money" too far, as for example by the assumption that the central bank is the debtor of the owner of a bank note. The owner of a bank note does not dispense with the right of purchasing goods and cannot be spoken of as a creditor (in an economic sense) of the issuing central bank (even if he is a creditor in the legal sense of the word).

What, then, is the economic nature of an "additional" money supply which does not involve costs of production closely approximating its nominal value as in the case of full-bodied money?

Whenever the monetary authority increases the money supply "out of nothing," through an act of creation (and whenever a commercial bank does the same), it increases the purchasing power of those who receive it. Whether the purchasing power of the holders of the previously existing money is decreased by the same amount or not, depends on the development of production in consequence of the creation of additional money. If the factors of production had been rather fully employed by the time the new money was created, it is to be expected that prices will rise in general. If the new money was injected into the economy at a time of substantial underemployment, it is possible that a rise in production and supply will counterbalance the artificial increase in monetary demand and that prices might not increase or might increase less than in the case of full employment.

The creation of new money must, therefore, not necessarily lead to a deprivation of the holders of the previously existing money. It is not always correct to ascribe to newly created

money inflationary consequences if inflation is defined as a general rise in prices. What the economic effect of the creation of money will be, whether outright inflation or a welcome stimulus to overcome economic stagnation or underemployment, depends on many circumstantial factors which we shall have to consider in detail later on. In general it can be said, however, that the creation (or destruction) of money introduces an artificial element (for better or worse) into the price mechanism of the economy which will change the relative price structure. Very often new money will enter circulation through the channels of the credit market where it increases the supply of loanable funds and tends to decrease the rate of interest. It can easily be understood that newly created money is a source of the supply of loanable funds distinctly different from the "normal" source of savings. In case the creation of new money should lead to a general increase in prices, the process is described as "forced" saving to indicate the sacrifice forced upon the previous holders of money. The term is perhaps not very good¹ because it creates the impression that the people forced to save could claim a future recompense. This, clearly enough, is not the case.

The strange impression that all creation of money is a kind of legalized counterfeiting, of orderly theft and robbery, may be mitigated by the knowledge that the creating authority is public and not private and by the comprehension that the increase in the supply of money may be highly beneficial to the economy as a whole in that it may not only increase the national income in monetary terms but also the national income produced.

¹ "To talk about forced saving seems . . . unfortunate, as the people with fixed incomes, who reduce consumption when prices go up, nevertheless probably save less than before. A 'forced levy' is therefore the better term." Bertil Ohlin, "Some notes on the Stockholm theory of saving and investment," *Economic Journal*, Vol. 47, 1937, p. 69.

2 DISCOUNT POLICY

When the monetary authority decides to increase the amount of common money (which for the time being we assume to be the only kind of money in circulation), it may put the newly created money either at the disposal of the government or private individuals in the form of loans or security purchases. In both cases it is more than a formal question as to whether the credit is supposed to be a short-term or a long-term credit. If the monetary authority is convinced that the amount of money in question is permanently needed in circulation, it does not make much difference in which way the creation is accomplished. Inasmuch as the quantity of money has to be managed, in the sense of being increased or decreased in different periods of time, the monetary authority has to consider from the outset the possible necessity of a withdrawal of money sometime in the future and the way in which it is to be accomplished. The repercussions of a withdrawal of money depend partly on the methods of issue. This is the reason for the regulation to be found in many banking laws that the amount of bank notes, not backed 100 per cent by gold or silver, should be secured by short-term commercial paper.

The typical short-term credit is based on the promise of the buyer to pay the price of the purchased commodity in, say, three months. The buyer will either sign a promissory note, that is, an unconditional promise to pay at the determined future date, or the seller will draw a draft on the buyer ordering him to pay. The buyer, by accepting the draft, promises to pay. This method of selling on credit is a combined sales and credit transaction, the interest charge being concealed in the price.² If the seller does not wish to wait for his money, he may sell the promissory note or the endorsed acceptance for its nominal value minus interest for three months. He could

² See N. G. Pierson, *Principles of Economics*, Vol. 1, Macmillan London 1926, p. 191.

have used the commercial paper as a means of payment if it were not for the inconvenience caused by the character of the commercial paper, its variable amount, its very limited circulation, its provisional quality, and the risk involved.

This, now, is the point where the monetary authority has an excellent opportunity to create common money by buying commercial paper of the kind just described, deducting of course from the face value the discount for the remaining waiting period. Later on we shall assume that the monetary authority buys this paper from the commercial banks which discounted it in the first instance. It is then proper to speak of re-discounting.

When common money is brought into circulation through a process of discounting commercial paper, it is, in principle, easy to control the total amount of money (which we are assuming consists exclusively of common money). A change in the discount rate, fixed by the monetary authority, is normally all that is necessary. Other things remaining equal a lowering of the rate of interest will lead to the borrowing of greater amounts of loanable funds and vice versa. The commercial credits have to be repaid within a comparatively short period of time, thus guaranteeing an automatic return flow of the newly issued money.³ Thus the monetary authority has the possibility of decreasing the amount of money at any time by letting this return flow exceed the new outflow. It has been argued, furthermore, that the amount of money can be decreased without unnecessary inconvenience to the debtor, because "the process of production itself provides normally the means for settling those bills which are covered by the commodities worked-up in the process. Hence, when the banks seek the settlement of the bills which they hold, they need not necessarily exert a disturbing influence on the normal

³ See Friedrich von Wieser, *Theorie der gesellschaftlichen Wirtschaft*, Tübingen, Paul Siebeck, 1924, p. 175.

life of the community.”⁴ They just have to increase the rate of discount, that is, the price asked for the loan of funds, in order to reduce the outflow of new money relative to the return flow. A decreasing rate of discount, on the other hand, is supposed to increase the demand for loanable funds and lead, other things remaining equal, to an excess of the outflow over the return-flow of money. This principle on which the regulation of the quantity of money could (or should) be based, was stated as early as 1802 by Henry Thornton in *An Enquiry into the Nature and Effects of the Paper Credit of Great Britain*. “In order to ascertain,” says Thornton (on p. 267), “how far the desire of obtaining loans at the Bank may be expected at any time to be carried, we must enquire into the subject of the quantum of profit likely to be derived from borrowing there under the existing circumstances. This is to be judged of by considering two points: the amount, first, of interest to be paid on the sum borrowed; and, secondly, on the mercantile or other gain to be obtained by the employment of the borrowed capital . . . We may, therefore, consider this question as turning principally on a comparison of the rate of interest taken at the bank with the current rate of mercantile profit.”

The discounting of commercial paper has often been thought of as the ideal way of bringing money into circulation on the argument that it provides an automatic adjustment of the circulation of money to the circulation of goods. The real backing of money in circulation, it is argued, consists in the goods in the process of production and marketing. Thus, whenever money is created on the basis of commercial paper, the goods to be bought with the money are already in existence and no increase in the price level—otherwise the consequence of active credit creation—will arise. Conversely, when the goods are sold to final consumers the entrepreneurs

⁴ Gustav Cassel, *The Theory of Social Economy*, new revised edition, New York, Harcourt, Brace & Co., 1932, p. 433.

will pay off their bank loans from the proceeds of their sales, and thus the circulation of both money and goods in trade channels will be reduced in roughly equivalent amounts.

The main objection to this seemingly profound statement is to be found in Thornton's remark on the importance of the rate of interest as compared with the anticipated rate of profit. In changing the rate of interest the monetary authority has a powerful instrument to influence the demand for and the supply of money. There is no possible doubt that too low a rate of interest may lead to a dangerous inflationary tendency even though "the loan is for a short time and secured by goods passing from the producer to the consumer" and though "there emerges at time of sale of goods the proceeds by which the loans can be paid off."⁵ Professor Laughlin's mystical formula that "credit follows the volume of trade" does not do away with the fact that an artificially lowered rate of interest may increase the volume of credit and thereby influence prices, production, and business anticipations. This may be all to the good. But it must be understood that the quantity of money can be changed artificially and is not merely a passive and neutral product of the volume of trade.

This "commercial loan theory of money" disregards the elementary facts that the supply of commercial paper is not independent of the rate of discount and that short-term commercial bills are just one form of financing among many; they are, therefore, no indication whatsoever of the legitimate demand for money in its totality. A great supply of commercial paper might prove that entrepreneurs are accustomed to satisfy their demand for working capital in this particular form. But other habits of financing, e.g. the sale of securities, could easily reduce the supply of commercial paper without reducing in the least the total demand for money. This is, as a

⁵ J. L. Laughlin, *The Federal Reserve Act*, New York, Macmillan, 1933, p. 240.

matter of fact, one of the main reasons why the discount policy of central banks has had to be supplemented by open market policy (see section 5 of this chapter).

The commercial loan theory of money becomes an entirely hopeless proposition as soon as we introduce the multiple expansion of deposit money on a given basis of common money. Discount policy may suffice under certain favorable conditions for regulating indirectly the amount of deposit money. But it cannot be argued that it will be able to restrict bank loans to the types which would fulfill the ideal of the theory. The central bank, as a matter of fact, has very little influence over the types of purposes to which the commercial banks apply their funds.

We have to come to the conclusion that it is decidedly wrong to expect from the practice of discounting or re-discounting commercial paper the happy result of an "ideal" money supply. Discount policy is a technique of regulating the quantity of money, but it is not in itself the end of monetary policy. Looked upon even as a mere technique it encounters difficulties which we have to examine more carefully.

3. SHORTCOMINGS OF DISCOUNT POLICY

For purposes of exposition we have assumed that business will react promptly to changes in rates of interest and discount. In real life, however, this reaction is not to be relied upon. Profit expectations may be so extremely low that even a substantial reduction of bank discount rates will not lead to the desired increase in investment. This possibility is implicit in Thornton's statement. We only have to assume that the anticipated rate of profit may fall below the practical minimum of the rates of discount, taking into consideration the fact that the rates of discount contain cost elements such as wages and risk premiums, which, however small, prevent them from falling to zero or from becoming a negative quantity. Even if depressed to their lowest possible level, bank rates

might fail to stimulate business, and other instruments of monetary or general economic policy would have to be called into play.

In the opposite case, in which the aim of the authorities is to restrict the demand for money, there is a much greater probability that the raising of discount rates to business borrowers would have the desired deterrent effect, for there must be some point at which increased loan rates exceed profit expectations. It should not be overlooked, however, that some time may have to elapse before the increased rate of discount will be followed by the desired effect of reducing the circulation of money.

Here we are in full view of a conclusion which has been thoroughly confirmed by experience, that central banking policy has much greater potential effectiveness when the purpose is to retard or arrest credit expansion than when the stimulation of credit expansion is sought.

The theory that a skillfully administered discount policy will not interfere with the normal course of business is dangerous if it rests on a shallow conception of the complexity and the ramifications of the modern process of production. It is true, as Mr. Hawtrey⁶ has pointed out, that merchants tend to be sensitive to changes in loan rates, decreasing their inventories whenever anticipated profit margins are wiped out by increasing rates of interest. But decreasing stocks of merchants mean decreasing demand for the goods already in process. Not being able to sell their products, producers in the different earlier stages of production will have to adjust themselves, one after the other, to the diminishing saleability of their products at existing prices. Thus their ability to pay back the bank loans, by means of which their inventories are financed, is reduced. The continuation of this spiral of contraction leads to a condition of "frozen" circulating capital, and the process of production does not "provide the means for settling those bills which

⁶ See, e.g., *Trade and Credit*, London, Longmans, Green & Co., 1928.

are covered by the commodities worked upon in the process.”⁷ Once the short-term credits are “frozen” they will not respond as readily to changes in the rate of interest as some theories assume. It may become necessary for business men to sell below the costs of production which again shows that it may be impossible to “provide the means for settling those bills.”

Those who insist on the self-liquidating character of commercial bills underestimate the fact that it is often extremely difficult to ascertain the real character of the credits given. What superficially seems to be a short-term credit may, in reality, be a long-term credit not at all sensitive to changes in the rate of interest. The processes of production are split up into many separate but interrelated performances, the adjustability of which towards changed conditions is dependent upon the status of the whole system rather than merely upon the forms of financing. The working capital of any firm engaged in capital goods production may easily turn out to be long-term capital from the standpoint of the economy as a whole, if actual demand falls short of anticipated demand. Every step in the technical process of production depends for its financial liquidity on the demand of the next, and the often over-rated liquidity of the final stages of production, if really counted upon, may prove to be the source of an avalanche of illiquidity throughout the entire system.

An analysis of the processes of production in general thus reveals the futility of most of the arguments that are being used in defense of discount policy as the single and adequate means of monetary policy.

4. DISCOUNT POLICY AND THE REGULATION OF DEPOSIT MONEY

Thus far we have assumed that there is only common money in circulation. The introduction of deposit money into the analysis leads to additional difficulties for the theory of dis-

⁷ Cassel, *op. cit.*, p. 433.

count policy. We have seen that the monetary authority, in regulating the commercial banks' deposits with the central bank, also indirectly regulates the total quantity of deposit money and that there would be no additional problem if changes in the quantity of central bank deposits would be immediately followed by exactly corresponding changes in the quantity of deposit money. Such an immediate reaction, however, is wholly unrealistic. We must not be deceived by the existence of legal reserve requirements in various countries. These legal ratios do not establish rigid quantitative relations between central bank deposits and deposit money. All that can be said is that they are supposed to mark an upper limit for the creation of deposit money. But even that is not quite true for it is the very essence of reserve rules to be violated once in a while.⁸ Much more important is the fact that the instruments at the disposal of the monetary authority do not guarantee the expansion of deposit money up to the legal limit. Excess reserves in the strict sense of the word, that is, reserves over and above the legally required amount, show clearly enough by their mere existence that the monetary authority cannot expect a multiple expansion of deposit money to take place automatically up to the legal limit or even at all. There is nothing in the structure of a free exchange economy that would enable the commercial banks to force loans upon their customers. The same difficulty was revealed in our discussion of the shortcomings of discount policy in a circulation without deposit money.

Some of the problems of the regulation of deposit money could be brought nearer to a solution if a 100 per cent reserve requirement were enforced with respect to deposit money. The contention is correct that "the chief loose screw" in modern

⁸ Otherwise the reserves are positively of no use, like the taxicab in W. R. Burgess's story, which, according to an ordinance passed by wise city fathers, had to be kept waiting at the stand all the time and under all circumstances. *The Reserve Banks and the Money Market*, p. 25.

banking systems "is the requirement of only fractional reserves behind demand deposits." Fractional reserves give the commercial banks "the power to increase or decrease the volume of our circulating medium by increasing or decreasing bank loans and investments. And as each bank exercises this power independently of other banks, and without centralized control, the resulting changes in the volume of the circulating medium are largely hap-hazard."⁹

The peculiar regulatory problems of a monetary system which uses common money and deposit money simultaneously relate mainly to the control of the central bank over the reserves of the commercial banks. At this point the problem of the central bank's re-discount policy enters our discussion.

What is the function of discount policy in a system in which the creation of deposit money is supposed to be limited by the reserves which the commercial banks are obliged to hold in the central bank in accordance with legal requirements or time-honored practices? How does the power of multiple credit expansion possessed by the commercial banking system affect the functioning of the re-discount policy of the monetary authority?

An increase of the central bank rate of re-discount, by increasing the cost to the commercial banks of additional reserves, is supposed to discourage further increases in their loans and investments and thus to arrest, or reduce the rate of, the expansion of the volume of deposit money.

It is clear enough that this policy cannot succeed if considerable excess reserves are at the disposal of the commercial banks. Not before these reserves have been used up by further credit expansion (or by an increased demand for "cash" in circulation) will the commercial banks have to apply to the central bank for re-discounting accommodation. But even then it will remain somewhat doubtful whether or not the increased

⁹ Quotations from a mimeographed "Program for Monetary Reform" of February 1939, signed by Professor Irving Fisher and associates.

rate of re-discount will have the desired deterrent effect. The increase in the cost of procuring additional deposits with the central bank need not be prohibitive for institutions which have, between them, the power of multiple credit expansion on the basis of a given amount of common money. Multiple credit expansion means multiple interest revenue, and it seems possible therefore that the increasing cost of re-discounting might not by itself induce the commercial banks to reverse their policy.

Considering the fact, however, that the process of credit expansion is a collective process and that any single bank cannot lend out much more than the amount of common money which it does not need as reserve, it can be argued that "a rate of *rediscount* . . . that equals or exceeds the rate of *discount* tends strongly to check borrowing by the commercial banks."¹⁰ It is possible that the individual banker will be impressed by the cost of re-discounting if he considers only the first stage of the process of collective credit expansion, namely, the lending out of cash not required for reserve purposes, and if he disregards the additional revenue which he may reap from similar actions of his fellow bankers.

The 100 per cent program would do away with this inefficacy of the re-discount policy as far as it is caused by the power of multiple credit expansion of the commercial banks. But the importance of re-discount policy does not mainly rest on its character as a cost factor. It is its function as a signal that counts. The commercial banks are tacitly warned that they will have to bear the consequences if they fail to follow the leadership of the central bank by varying their own rates accordingly. In addition to this element of quiet coercion, established ideas as to what is respectable conduct on the part of a commercial bank, "the customary loyalties and taboos,"¹¹

¹⁰ C. A. Phillips, *Bank Credit*, p. 116.

¹¹ D. H. Robertson, *Money*, p. 179.

may further strengthen the force of discount policy as an instrument of monetary policy. The nature of this element of custom depends upon the monetary system. The role played by re-discount policy varies widely according to historical development and institutional arrangements in the different countries. Since only the fundamental aspects of the regulation of the quantity of money are now under discussion, we shall not undertake to detail these institutional peculiarities.¹²

5. OPEN MARKET OPERATIONS

In view of the shortcomings of re-discount policy the development of open market operations—the purchase and sale of government securities and other credit instruments in the open market—as an additional, and to some extent alternative, instrument of central bank policy is a logical step which has taken place in the evolution of monetary control.

From the standpoint of their strategic value to the central bank, open market operations possess a degree of superiority over re-discount policy because of the fact that the initiative is in the hands of the monetary authority in the case of the former, whereas bank rate policy is passive in the sense that its effectiveness depends on the responses of the commercial banks and their customers to changes in bank rates. The open market operations produce their effects partly by altering the cash reserves of the commercial banks. If the central bank purchases securities from the commercial banks, the cash reserves of the latter are directly increased in the form of balances at the central bank; if the securities are purchased by the central bank from the public, the result is about the same inasmuch as the seller deposits the proceeds in a commercial bank. The sale of securities by the central bank, on the other hand, diminishes the cash reserves of the commercial banks by the same process in reverse.

¹² See J. M. Keynes, *A Treatise on Money*, Vol. 2, chapter 32.

The working principle of the open market operations is so simple that it is important not to overestimate the powers of this instrument of monetary policy. It is, furthermore, necessary to understand that the open market operations are by no means intended to do entirely away with the bank rate policy, but are rather a useful and often indispensable complement of the latter.

A few examples will show some of the limitations which the monetary authority may meet in connection with open market operations. Already existing excess reserves indicate that the commercial banks are legally or technically able, but unwilling or unable (due to slack demand), to increase their loans; under these circumstances open market operations cannot improve the situation and, thus, cannot produce an expansion of credit. Or (even without assuming the existence of excess reserves) it may happen that the commercial banks use their increasing primary deposits to reduce their indebtedness with the central bank, thus counterbalancing the expansive effect of open market purchases. The sale of securities by the central bank, on the other hand, may prove ineffective in reducing the total amount of money in the banking system and in the hands of the public as long as the possibility of re-discounting leaves the way open to replenish the reserves which are reduced by open market operations. However, the open market sales would not be useless in this case. Once they force the commercial banks into a position of having to increase their re-discounting, the open market sales are at least a measure helping to make the re-discount policy more effective than it otherwise would be.

It is obvious that the open market and bank rate policies should not be used in ways which result in the one counterbalancing the other. They should be co-ordinated so as to achieve consistent purposes of monetary control. It does not follow, however, that there is only one logical pattern of combined bank rate and open market policies, such as selling securities in association with the raising of bank rate, and vice

versa. The two methods affect the money markets in different ways, and this makes possible a degree of refinement of control techniques which often is highly desirable. For example, re-discount policy influences directly the short-term rate of interest whilst the open market operations in securities also produce a direct effect on the long-term rate of interest by influencing security prices. This may be important for monetary policy in case it should seek to avoid international repercussions which threaten to frustrate the very purpose of the change of the rate of discount. It is a well-known fact that an increased bank rate, aimed to bring about a decrease in the volume of credit, tends to attract foreign short-term capital, thus increasing the credit supply on the domestic money market.¹³ The influence of the open market purchases might be expected in the capital market, on the other hand, to increase security prices and thereby to induce a diversion of short-term funds into the long-term security market.

In considering open market operations we cannot assume that the central bank is always a buyer in the security market. Sales of securities and their negative effect on security prices have to be considered, because, as a central banker once remarked, the open market policy has to have two doors, one through which to enter and another one by which to get out again. Sales of securities on the open market have the purpose of reducing the reserves of the commercial banks and of discouraging loan expansion. But these sales may be undesirable at the same time because of their harmful effect on security prices and on the credit standing of the government. As to the sales of government securities it has to be noted that these

¹³ As long as the monetary system is based on gold, the influence of the capital influx will take the form of gold imports thus increasing the liquidity of the central bank. Under a policy aiming simply at the fulfillment of certain gold reserve requirements, the discount policy, influencing at the same time the home demand for money and the supply of gold, is perfectly consistent.

operations are limited by the amount of "ammunition" accumulated during the time of open market purchases.

6. CHANGES IN RESERVE REQUIREMENTS

There is an even more direct method of managing the quantity of deposit money. The monetary authority may be empowered to change the legal reserve requirements of the commercial banks, thus changing not the existing cash reserves but the multiplying factor in the process of collective credit expansion. Increasing of reserve requirements tends to have the same general effects on bank credit as the raising of the bank rate or as sales in the open market, and vice versa.

Changing the multiplying factor in the process of collective credit expansion is an instrument which is much more powerful than any method of influencing the size of the member bank reserves. The change of this factor, moreover, is abrupt while changes in the quantity of central bank deposits have to be more or less gradual. Altering reserve requirements is therefore not a normal every-day instrument of monetary policy. Its main purpose is to do away with excess reserves which hinder the application of the discount or open market policy. If the central bank is afraid that it may not be able to prevent a sudden inflationary development which can take place on the basis of these excess reserves, it may skim off those reserves through its power to change the required reserve ratio.

7. MONETARY POLICY AND THE BUSINESS CYCLE

The effectiveness of the different instruments or weapons of the monetary authority is not always the same. The reactions of the commercial banks to the actions of the central bank vary with their relation in point of time to the business cycle. The existence of excess reserves, for example, makes the potential supply of loanable funds completely elastic, and an increased demand for loanable funds will be met, therefore,

at no increase in the rate of interest. The divergence between an (increasing) anticipated rate of profit and the (constant) borrowing rates leads to a general expansion of credit. The process of collective credit expansion leaves very little room for the more cautious and reluctant bank managers to have any significant retarding influence. The inflow of cash into the laggard banks and the pressure of competition force them to keep pace. As business conditions improve, the liquidity of certain assets increases. Frozen credits begin to thaw thus adding to the supply of loanable funds and accentuating the tendency of increasing liquidity. Besides, risk seems to be considerably reduced and there seems to be no harm in approaching the minimum legal reserve ratio or in reducing the customary reserve ratio where legal requirements do not exist.¹⁴

The importance of these tendencies for the explanation of the business cycle will be dealt with in a later chapter. For the time being we must concentrate on the problem of managing the quantity of money. We have to note that the amount of deposit money may be expanded for quite a time before the monetary authority is able or willing to check the expansion.

The question of the willingness of the central bank to risk cutting short a general revival of business by restrictive policies cannot be treated in general terms, depending, as it must, on many different factors such as the temperament and theoretical background of the responsible people and the peculiarities of the political situation. It is hardly deniable, however, that the central bank would support rather than check a general revival after years of depression.¹⁵ As to the ability of the mone-

¹⁴ See the interesting treatment of the problem in F. A. Hayek's *Monetary Theory and the Trade Cycle*, London, Harcourt, Brace & Co., 1932.

¹⁵ "When after a long stagnation the banks started again to comply with the general demand for facilitated credits, the public was always very glad about the signs of a beginning revival and, in face of the ruling 'ideology,' it would have been entirely out of the question for the banks to put the brake on right from the start, faithful to the principles of Lord Overstone."

tary authority to exert a braking influence once the upswing is well under way, we have to remember that this would mean the use of its right to increase the reserve requirements in order to wipe out excess reserves, plus a policy of increasing the rate of discount, which again is of uncertain effectiveness at a time of abnormal liquidity. In other words, the central bank has no really reliable instrument for checking the elasticity of the supply of bank money in the early stages of an expansion. The situation may become dangerous because of the cumulative forces of the upswing. "Throughout this process—the much-esteemed elasticity of bank funds (not originating in the amount of standard money) is the very condition causing, or making possible, the rising prices which stimulate the so-called 'needs of business.'"¹⁶ But in its upward course the expansion process is also generating the forces which eventually exert vigorous retarding influences. The outflow of cash into circulation increases because of the growing total wage bill which is largely paid out or, at least, re-spent in cash. The power of the monetary authority is greatly improved at this stage of the upswing, but it may already be too late to cope successfully with the consequences of the former credit expansion. The central bank, fearing that a restrictive credit policy will have depressive effects upon a vulnerable business situation, may hesitate to exert its full power.

It is highly doubtful that even the best conceivable monetary policy could eliminate cyclical fluctuations of a money economy. Such a policy would not only have to prevent disturbing influences from the monetary side itself but also to counterbalance disturbing influences from other sources. Experiences in recent years have at least shown that general fluctuations of business are continuing and that the instru-

Ludwig von Mises, *Geldwertstabilisierung und Konjunkturpolitik*, Jena, Gustav Fischer, 1928, p. 65.

¹⁶ F. A. Fetter, "Interest theories and price movements," *American Economic Review*, Vol. 17, Supplement, 1927, p. 95.

ments at the disposal of monetary authorities are certainly not capable, at least as they are now being used, of extricating the economy from conditions of underemployment and of leading it into permanent prosperity. The cyclical fluctuation of the money economy itself is partly the reason for the failure of the instruments of monetary policy to work more satisfactorily. It may be, as some believe, that the central banks fail to pump sufficient additional money into the economy; the anticipated rates of business profit may be lower than the lowest bank rate practicable, and open market operations may merely lead to repayment, rather than expansion, of bank loans. If the stimuli provided by the monetary authority fail to evoke the desired responses from business men, it might seem to be the logical thing to pump money into circulation through public spending.

A discussion of this highly controversial economic policy will be found in chapter 23.

Chapter 6

THE VELOCITY OF CIRCULATION OF MONEY

1. THE IMPORTANCE OF MONEY STOCKS

It is the very essence of money to be re-spent. The selling of goods is only one part of the process of exchange which is divided by the use of money into selling and buying. Money, as purchasing power, embodies the right to take goods at any time out of the markets of the economy. To overcome entirely the frictions of barter everybody has to have a reserve of money on hand.

Money overcomes the clumsiness of barter by making sales and purchases independent of each other with regard to the choice of the partner and the time. This being so, we cannot expect a person's inflow and outflow of money to be exactly the same during any short period. But the difficulties which might arise because of this discrepancy are overcome by the keeping of adequate cash balances or reserves of money. If we compare the smoothness of exchange thus accomplished with the clumsiness of barter, we understand why money has sometimes been regarded figuratively as the lubricant of the economic system.

The amount of money an individual economy needs to hold as a cash reserve depends on the frequency of its money receipts, on the amount of transactions for which the money is needed during a given period of time and on payment habits and irregularities which prevent receipts and expenditures from being simultaneous. Services and commodities can be

paid for in different ways. The number of payments into which yearly salaries, rents or purchases of durable consumers' goods may be divided depends on the habits of payment. Once barter is replaced by separate sales and purchases in terms of money, the exchange of merchandise of a given value can be consummated either by one lump-sum purchase, by successive purchases in smaller amounts or by payment in instalments. It is evident that a fixed ratio between money transactions and the trade volume does not exist and that the methods and habits of payment are an important factor governing the velocity of circulation of money. Such practices as instalment payment and the payment of yearly salaries at monthly or weekly intervals make possible the use of the same unit of money repeatedly whereas otherwise lump-sum payments would necessitate larger cash balances—which would result in a lower velocity of circulation of money.

A man who receives his yearly income of \$3000 in monthly payments of \$250 will hold an average cash balance of \$125 provided that he spends his money in equal daily amounts. But the same habit of spending would necessitate an average cash balance of \$1500 were he paid in advance for the full year, or of about \$30 in case of weekly receipts. The same thought can be expressed by saying that the average period of rest of his yearly, monthly, or weekly earnings is, respectively, six months, fifteen days or three and one-half days. Thus the more often income is received (weekly instead of monthly), the higher is the velocity of circulation of money and vice versa.

The total stock of money in an economy equals the sum total of all "money reserves" (both inside and outside of the banks) held by individuals and organizations. The velocity of circulation of money is determined by the number of times a unit of money passes between these reserves during a given period—the dollar value of transactions per unit of money per period of time. Another way of expressing the velocity of

circulation of a unit of money is in terms of the average period of rest between two transfers.¹

But this is only the velocity of circulation of one unit of money and not the velocity of circulation of money in general. We have to note that several averages are in question.

Each unit of money (as far as its individual actions can be watched at all, which might conceivably be done with paper money but never with deposit money) has its peculiar fate just as an object drifting on water, which enters currents of different strength, gets entangled at the shore and rests for a while. There are different circulations through which monetary units tend to move at different average velocities. In one incomes are received and spent for consumers' goods; in another money facilitates the turnover of goods as between the different steps in the processes of production; in a third, the financial, securities are traded and loans are made; and of course we could consider many others.²

Another distinction we must make concerns the velocity of circulation of different kinds of money. Coins and notes of different denominations probably circulate at somewhat different speeds, and the different velocity of common money as compared with that of deposit money has been known for a long time. It should be borne in mind, however, that a certain velocity of circulation is not entirely an inherent quality of a special kind of money. The velocity of circulation of different kinds of money can be explained by the fact that particular kinds of money are especially suitable for particular types of transactions, for example, retail as opposed to wholesale trade.

That we cannot trace individual units of deposit money on their way from deposit to deposit goes without saying. In order to calculate the velocity of circulation of deposit money we have to work from the value of transactions in connection

¹ See Knut Wicksell, *Lectures on Political Economy*, Vol. 2, *Money*, p. 60.

² See J. M. Keynes, *A Treatise on Money*, Vol. 1, chapter 3.

with which bank deposits are turned over, as it is reflected, for example, in statistics of debits to deposit accounts. The resulting estimated velocity of circulation of the quantity of money is in reality an average of widely divergent average velocities of different parts of the money supply. Even as an average, this calculated velocity is subject to statistical errors resulting, for example, from the difficulty of separating those deposits which should from those which should not be included in the total quantity of deposit money. There are, besides, difficult theoretical problems of defining the quantity of money.

If the media of exchange do not circulate at all during a given period, we may ask whether we should include them in the quantity of money (M) since, for the time being at least, they do not appear on the demand side of the markets. If the money is at the immediate disposal of private persons so that it may become active at any time without control by the monetary authority, it logically has to be included in (M), provided a compensating reduction of the average velocity of circulation of money (V) is made.

Money of this kind includes: (1) money which is held as reserve to meet contingencies connected with uncertainties as to the future; and (2) money which is hoarded, or which for some other reason remains idle for prolonged periods of time, such as for the purpose of building up savings.

This is one of the reasons why it is so difficult to segregate those deposits which properly belong to the quantity of money from those which do not. In theory we might validly exclude savings deposits entirely if it were not for the fact that the depositors themselves often have not yet decided upon the use they are going to make of the purchasing power in question.

Those media of exchange which are held as reserves against other media in circulation (the reserve of full-bodied money against token money and the reserve of common money against central bank deposits) do not belong to the total

quantity of money. In case of redemption they take the place of those media which are redeemed, and the total amount of money is not changed for the time being. This is the reason behind the principle that an increased demand for redemption can unhesitatingly be met without fear of inflation. The effect is only the substitution of one type of money for another.

2. THE ECONOMIZING OF MONEY STOCKS

The more rapidly receipts and disbursements follow each other, the smaller is the stock of money which a person or business firm must hold in order to handle a given total value of transactions, and the greater therefore is the resulting velocity of circulation of the money stock. If money reserves are comparatively small, the velocity of circulation of money has to be comparatively high if the given value of the person's or firm's transactions is to be accomplished. In analysing the motives which determine the necessary money reserves for efficient personal and business economy we analyse the fundamental principles governing the velocity of circulation of money.³

Under the impulse of profit maximization there must be a strong tendency towards the reduction of cash balances to a practicable minimum. No one will hold too much cash, which yields no interest, if attractive interest yielding investments are available. Cash reserves, therefore, have the tendency to be kept at a minimum in proportion to the anticipated amount of transactions, even though this anticipated amount of transactions may be subject to wide fluctuations over a period of time. If no other adjustment is possible, the cash reserve has to be large enough to meet the maximum demands of these fluctuations. But the credit system makes it possible to reduce the

³ See M. W. Holtrop, "Die Umlaufgeschwindigkeit des Geldes," in F. A. Hayek, *Beiträge zur Geldtheorie*, Vienna, Julius Springer, 1932, pp. 115-209.

total amount of reserves substantially by recourse to loans to meet exceptionally large temporary requirements.

Assuming that the levels of reserves needed do not coincide in time for different persons and businesses, there must be the possibility that the average amount of money needed to satisfy their collective cash reserve requirements during a period of time is lessened if temporarily excessive cash balances of some persons or firms can be made available to others whose cash balances are temporarily deficient. The net result is to increase the number of times a given quantity of money changes hands. If every person or firm attempts to minimize its cash holdings, it will either adjust its temporary borrowing to the amount of cash needed at the moment or, through banking processes, its excess cash balances are made available to borrowers in the short-term loan market.⁴ As a matter of fact consecutive production processes very often support each other by some form of credit operations.

This works in the following way. If an entrepreneur has enough purchasing power to meet his maximum requirements, he is probably able and willing to finance entrepreneurs in previous stages of production whose demand for credit is at its peak immediately before their output is sold. In this case credit operations may take either the form of loans or of payments in advance of delivery. In other cases credit may be extended to entrepreneurs in subsequent stages of production in the form, for example, of sales on open book account or against trade acceptances or promissory notes. The credit demand of farmers tends to be high when that of corn merchants is low, but after harvesting the crop the situation is reversed and the depleted cash balances of the corn merchants are restored gradually as their inventories are sold. Similar examples may be found wherever technically dependent but financially separated stages of production succeed one

⁴ J. M. Keynes, *A Treatise on Money*, Vol. 1, p. 42.

another in point of time. For this to be true it is necessary, of course, that in each stage there is a peak level of operations concentrated in one part of a period of time. A given quantity of credit is released upon the completion of one stage and can thus be made available to help finance the next.

Whatever the methods of carrying out these credit operations may be, they always mean that the available purchasing power is transferred to those who are then in need of it. Funds which might otherwise be idle are put to work. Banking institutions facilitate this mutual accommodation by bringing those persons together whose financial requirements are synchronized in the manner described. To a much larger extent the banks also serve as intermediaries in the money market between persons who are in no way mutually connected by the transactions which have to be financed. In the very widest sense the banks effect a kind of pooling of the cash of the community as between persons who own cash balances which they have not the intention of drawing upon in the immediate future and persons who can make current use of these balances.

At the present point of our discussion we cannot go deeper into the problem of the credit market; the analysis of credit relations has to be treated in a later chapter. For the time being we are interested only in the question of the velocity of circulation of money. In this connection it has been shown that the velocity of circulation of money is partly determined by the fact that cash balances can be reduced by credit transactions. These credit transactions aim to supply the purchasing power needed at the right time and to dispose of those amounts which exceed the balances momentarily required. But the demand for working capital must be distinguished from the demand for purchasing power. While it is true that the demand for working capital is initially a demand for purchasing power and that credits are extended in the form of demand deposits, nevertheless there exists a decisive difference which may be illustrated by the following case. Credits are extended, let us say, for

a period of 90 days. The money is spent more or less immediately by the borrowers and may be transferred several times before the credit is retired by the payment of an equal amount of money to the creditors.

Thus it will be clear that the duration of the credit has nothing to do with the intervals of time during which the money is at rest in someone's cash balance; and it is the average of these intervals of time by which we can measure the velocity of circulation of money. It is misleading when Mr. Keynes describes the "business motive" for holding cash by saying that "cash is held to bridge the interval between the time of incurring business costs and that of the receipt of the sale-proceeds."⁵ In Mr. Keynes's example cash is not held; it is spent, and the duration of the credit must therefore not be identified with the length of time that the borrowed money is held as a cash balance by the business firm. To repeat, a new credit means the transfer of a corresponding amount of money; but this amount of money may be exchanged subsequently in business transactions many times before the original credit is retired. It is naturally very interesting that these short-term credits may be "self-liquidating," i.e., that they are paid back automatically and that they too have something like a "velocity of circulation." This, however, is not the velocity of circulation of money.

For our immediate problem this analysis is important only in establishing the fact that it is with the help of short-term credits that people manage to reduce their cash balances and to adjust them to the anticipated fluctuations of transactions.⁶

⁵ J. M. Keynes, *The General Theory of Employment, Interest and Money* (London, Macmillan, 1936, p. 195.

⁶ If there existed a perfect money market, no money would need to be held. Any surplus cash would be lent out and any deficiency made good by borrowing. Why, then, is cash being held? (1) Because the main condition of a perfect money market, the complete compensation of demand and supply of money among individual economies, is not realized. After all fluctua-

3. THE LIQUIDITY PREFERENCE

Opposed to the tendency to economize cash balances as far as possible are the "psychological and business incentives to liquidity." Mr. Keynes⁷ distinguishes three motives of liquidity preference: (1) "the transaction-motive, i.e. the need of cash for the current transaction of personal and business exchanges"; (2) "the precautionary-motive, i.e. the desire for security as to the future cash equivalent of a certain proportion of total resources"; (3) "the speculative-motive, i.e. the object of securing profit from knowing better than the market what the future will bring forth." The transaction motive has already been explained as being connected with the necessity of bridging the interval between the receipt and the disbursement of money. The precautionary motive is the desire to avoid the loss which might be incurred in purchasing a long-term security and subsequently having to re-sell it because of cash requirements resulting from developments subsequent to the purchase of the security. The speculative motive may be understood simply as the tendency to postpone expenditures if one expects prices to fall. To hasten expenditures (and postpone sales), if one expects prices to rise, would imply the tendency to keep no money for the speculative motive.

tions in individual demands for money have been compensated for, there remain changes in the total demand which are not met automatically by compensating changes in supply. (2) Because an artificial compensation for these changes in the demand for money is not provided for by an elastic monetary system to such a degree that it could be relied upon in any case. It is not always possible to borrow or to lend for any short period and it becomes perhaps more expensive to borrow than to hold money reserves. (3) Because it is quite generally inconvenient and costly to carry the tendency of doing without cash too far; the frictions in the form of costs of manipulation become too great.

⁷ J. M. Keynes, *General Theory*, p. 170.

The influence of the liquidity preference is extremely important as a partial explanation of the phenomena of deflation and depression which will be examined in detail later. For the present it is sufficient to note that the main factors determining the strength of liquidity motives (with the exception of the transaction-motive) appear to be the supply of purchasing power and the existing rates of interest, together with a variety of psychological attitudes such as anticipations as to price movements and optimism and pessimism regarding the business situation. Decreasing interest rates render it easier to yield to liquidity motives due both to the reduced interest income from investments and the fear that subsequent upward movements of interest rates will be accompanied by falling security prices, resulting in capital losses to the investor. Anticipations of falling prices make people hesitate in the belief that patience will be rewarded by better bargains. It has to be expected that these forces are apt to interfere with the above mentioned tendencies towards the integration of credit and the economizing of cash balances and their resulting effects on the velocity of circulation of money. If the money market rests on the mutual use of a comparatively small supply of short-term credits by various persons at different times, the tendency to discontinue the customary credit relations in order to increase cash balances will lead to a chain of disturbing consequences.

Every successful attempt to economize cash balances leads to an increase in the demand for goods and services and, other things remaining equal, to an increase in their prices. The economizing of cash balances means that (latent) purchasing power is released without decreasing the amount of purchasing power already in use. This increase in the total amount of money spent during a given period of time takes place without any increase in the total money stock. The source of the new purchasing power reveals itself in the increased velocity of circulation of money.

An increased velocity of circulation of money tends to raise prices, but an increased level of prices, in turn, leads, via the transaction motive, to an increased liquidity preference. The cash released through the economizing of cash balances accommodates this need for more cash. Other things remaining equal, the inflationary tendency of an increased velocity of circulation will have worked itself out when the amount of cash released through the economizing of cash balances is absorbed by the increase in cash balances necessitated by the general increase in prices.

We have shown that the velocity of circulation of money depends partly on the degree to which cash balances may be economized. This degree again depends on the organization of the money market and on the methods of payment which are commonly used—for example, as to whether wages are paid in cash or by check, daily, weekly or fortnightly; the relative importance of open book credits and acceptances in business finance; and the extent to which retail sales are made on credit or for cash. It is unlikely that these factors determining the velocity of circulation of money are subject to very considerable and rapid changes in normal times. On the other hand, a trend in the direction of an increased velocity of circulation of money is more or less an automatic result of developments of the banking and credit system tending, for example, to increase the concentration of cash reserves in the banking system.

Short-term variations in the velocity of circulation of money have to be expected in connection with the business cycle. Those forces which influence the liquidity preferences of banks, businesses, and individuals are highly responsive to cyclical variations. Decreasing interest rates diminish the opportunity cost of liquidity, and decreasing price tendencies induce people to postpone purchases of goods and services. Increasing interest rates and a brisk demand for capital make for the utmost utilization of loanable funds, and increasing prices lead to

anticipatory purchases of goods. In defining the changes in the velocity of circulation of money in terms of hoarding and dishoarding we throw light on the important part played by these changes during the business cycle.

A period of hyper-inflation is one of amazing increase in the velocity of circulation of money. As soon as people realize that money stocks depreciate considerably in periods as short as a month, a week, a day, a forenoon, an hour—they naturally react by spending the money received with ever increasing rapidity. The social catastrophe of this tragi-comical situation is mainly due to the fact that it is in many cases impossible to adjust contracts and methods of payment so as to bring about proportionate increases in money incomes all around. Wages fixed on Monday and paid out on Saturday may almost vanish in real purchasing power. It has often been suggested that the slowness of change in people's habits of payment prevents the velocity of circulation of money from increasing very rapidly. This is not true, however. It is rather that contracts and methods of payment differ widely in their adjustability and that these differences are a main cause of the maldistribution of income so characteristic of hyper-inflation and its aftermath.

4. THE CIRCULAR VELOCITY OF MONEY

The velocity of circulation of money refers to the number of money transfers between individuals, business firms, and others during a period of time, including every transfer whether in connection with consumers' purchases, producers' purchases, or financial transactions. This is implied in the equation of exchange, $MV = PT$, in which M is the quantity of money, V its velocity of circulation, P the general price level and T the volume of trade, that is, the real volume of all market transactions during a period of time, say a year.

V changes its meaning, and may be redesignated as V_r if, in a similar equation, T_r should be redefined as the real

national income per annum.⁸ In the equation $MV_y = P_y T_y$, only M is identical to the M of the equation of exchange. The T_y of our new income equation is, as already stated, the goods and services constituting the real annual income; P_y is the average price level of the goods and services comprised in T_y ; and V_y becomes the so-called income or circular velocity of money. Since M is the total quantity of money and T_y is an amount considerably smaller than T , it is obvious that the income or circular velocity of money is smaller than the transaction velocity of circulation of money. V_y indicates the number of times a unit of money is spent on the real constituents of the national income, and since money cannot be spent in this way unless it has been received by somebody as income (and not simply as sales proceeds), V_y can be defined as the average number of times a unit of money enters (or leaves) the cash balances of ultimate income recipients during a certain period, say a year.⁹

The term *circular velocity of money* has been chosen to indicate the average time duration of the flow of money from ultimate income recipient to ultimate income recipient or, referring to the income period of one year, to indicate the number of completed circuits. This concept has become increasingly interesting in its application in explanation of the so-called secondary effects of income-increasing expenditures.¹⁰

For a full understanding of the circular velocity of money, especially in counterdistinction to the transaction velocity of circulation, it is important to notice that on its way from ultimate income recipient to ultimate income recipient money passes stages such as retailing, wholesaling, and different steps

⁸ For a further discussion of T_y , see chapter 7, section 4.

⁹ See J. M. Clark, *Economics of Planning Public Works*, Washington, D. C., United States Government Printing Office, 1935, pp. 87-88; J. W. Angell, "The components of the circular velocity of money," *Quarterly Journal of Economics*, Vol. 51, 1937, pp. 225-226.

¹⁰ See chapter 21, section 1.

in the production process down to the extraction of raw materials. The money received by the retailer is passed on to all those who participated in the making of the product and emerges as their income. The circular velocity of money depends on the average time duration of the total circuit. Of the \$10 spent for a consumers' good less than 1 dollar may be the net income received by the retailer and it may take several months until the last cent becomes part of the income of a coal miner.

Now it would be a mistake to identify the circular velocity of money with the time duration of the different consecutive production and marketing processes taken together. This would only be correct if there were just one production process at a time and if the new processes could not begin before the preceding processes were ended. But we have to consider that production and marketing processes of different kinds are started and finished every day and overlap each other.¹¹ This decreases the amount of transactions which have to be carried through in a certain period of time. Here we meet again the payment habits of the society as a decisive factor, for it is not the technological length of the production and marketing processes which determines the circular velocity of money, but the intervals between the dates of wage and other types of income payments and the fact that other payments in the various stages of production are also made periodically.

Whatever retards or accelerates the speed with which the average unit of money traverses any part of the whole circuit will change the circular velocity of money. Such influences are, for example, alterations in payment habits, in the degree of

¹¹ Cf. J. W. Angell, "The general dynamics of money," *Journal of Political Economy*, Vol. 45, 1937, p. 293ff; Howard S. Ellis, "Some fundamentals in the theory of velocity," *Quarterly Journal of Economics*, Vol. 52, 1938, pp. 433-446.

differentiation or integration of the organization of production, and in liquidity preference.

Let us assume that, other things being equal, an increased vertical separation of production (i.e., increased number of firms) necessitates additional cash balances in the industrial circulation. The total stock of money remaining the same, the necessary increase of cash balances can only be brought about or, more correctly, offset, by a decrease in the cash balances needed to be held through a decrease in the prices of producers' goods. Since the prices of producers' and consumers' goods cannot remain in permanent disequilibrium, the prices of consumers' goods will have to fall. This means that less money is needed for consumers' cash balances and that a larger part of the given money stock is available for use in the industrial circulation. The total stock of money has to be multiplied by a smaller circular velocity to match the decreased price level of consumers' goods.¹²

5. THE CAMBRIDGE EQUATION

Our explanation of the velocity of circulation of money has centered on the factors which determine the necessary money reserves for efficient personal and business economy. The demand for money to hold, that is, the demand for cash balances, we have learned, depends, on the one side, on the motives of liquidity and, on the other, on the possibilities for lucrative investment or consumption of those funds which are not needed for reserve purposes.

It is therefore possible to approach¹³ the problem of the interrelationship of the quantity of money, its velocity of

¹² See H. S. Ellis's criticism of Professor Schumpeter in *German Monetary Theory 1905-1933*, Cambridge, Harvard University Press, 1934, p. 136.

¹³ For an excellent treatment of the different approaches see Lester V. Chandler, *An Introduction to Monetary Theory*, and A. W. Marget, *The Theory of Prices*, Vol. 1.

circulation, the volume of transactions and the average price level, entirely as a problem of the supply of and the demand for money. The supply of money is the sum total of common money and deposit money in the hands of the community (not counting, therefore, the money which is held as reserve against other money by the monetary authority). The demand for money is the aggregate amount which the community wants to hold in the form of cash balances at home (pocket book money) or with the banks (check book money). This amount can be expressed as a certain proportion of the annual real income or of the transactions which have to be performed during one year. Since T_v and T have to be expressed for a period of time, say one year, a fraction of T_v or T can be indicated as a fraction of this period of time, say a month or a week. A person may desire to hold enough money to be able to buy $\frac{1}{12}$ of his annual real income. His cash balance will tend to be the monetary equivalent of $\frac{1}{12}$ of his annual real income. If everyone should desire to hold this proportion of his income in the form of cash, the total amount of all cash balances of ultimate income recipients would be $\frac{1}{12}$ of the real national income, the income velocity V_v would be 12, and M , the total quantity of money, circulating 12 times per year would just be able to buy the real national income T_v at P_v prices.

Exactly the same idea can be expressed by using K_v instead of V_v . K_v is the proportion of T_v which the ultimate income recipients desire to hold in the form of cash balances. In our example K_v was $\frac{1}{12}$, that is, an amount of money sufficient to buy one month's real income. At prevailing prices P_v , the total national income produced cannot be bought unless money is used 12 times throughout the year. This shows that $K_v = 1/V_v$ and that $V_v = 1/K_v$. The cash balance or Cambridge equation of the income type can be written as

$$P_v = \frac{M}{T_v K_v}$$

The transaction type of the cash balance equation considers as K the fraction of one year's transactions whose monetary equivalent the community desires to hold in the form of cash balances. Since T is much larger than T_v , M (the total of all cash balances) is a much smaller fraction of T (than of T_v) and K is therefore smaller than K_v , just as V is larger than V_v . The transaction type of the cash balance equation can be written as $P = M/TK$.¹⁴

¹⁴ See J. M. Keynes, *A Treatise on Money*, Vol. 1, p. 229f; and D. H. Robertson, *Money*, p. 195.

Chapter 7

THE TRADE VOLUME

1 THE VELOCITY OF CIRCULATION OF GOODS

It is sometimes said that the velocity of circulation of money cannot influence the value of money since money and goods are always exchanged against each other, unless money can be made to circulate against nothing. A change in the velocity of circulation of money, it is argued, has to be accompanied by an equivalent change in the "velocity of circulation of goods" because money transactions cannot increase if commodities are not offered for sale more often in exactly the same measure.

It is not difficult to overcome the fallacy of these arguments.

(1) The concept of a velocity of circulation cannot be applied to goods in the same sense as it is applied to money. Money usually remains in circulation, goods are produced, marketed, and consumed, money stays in the market, goods merely pass through the market.

(2) Commodities and services can be paid for in different ways depending on the habits of payment and the development of the credit system. The same physical turnover of goods, therefore, can be associated with different velocities of circulation of money.

(3) Goods can be produced and traded by many or few independent firms, the number of firms depending on the measure of integration of business organization.¹ The greater

¹This is what Professor Hayek has called the "coefficient of money transactions" which depends on "whether in certain phases of the process of

the degree of integration, the less numerous will be the monetary transactions connected with the same amount of physical production. The smaller, on the other hand, the degree of vertical integration, the larger have to be the cash balances to prevent a fall in prices. There is no reason to assume that increased vertical separation would always by necessity increase the velocity of circulation of money. We have to allow that, in the absence of an increased supply of money, an increased vertical separation of production might be attended by declining prices to an extent necessary to establish a ratio of cash balances (for transaction purposes) consistent with the previously existing velocity of circulation of money.

(4) Fluctuations in inventories are important in connection with the business cycle, but they are much too complex to be related to variations in the velocity of circulation of money in a fixed ratio exactly offsetting the effects of both the circulation of money and the circulation of goods.

(5) One refutation of the proposition, stated above, that it is illogical to expect that the money side of all transactions should increase without the goods side following it, is simply that such an argument neglects the possibility of inflation. Just as, in the absence of offsetting changes in other factors, an increased amount of money leads to a commodity price inflation, an increase in the velocity of circulation of money must be associated with the same result. This rise in prices accounts for the increased values against which the additional transfers of money are made; "the transfers are made against goods in every case, though against smaller units of these goods."²

production goods do or do not change hands." See F. A. Hayek, *Prices and Production*, p. 62f.

²A. W. Marget, "The relation between the velocity of circulation of money and the 'velocity of circulation of goods,'" *Journal of Political Economy*, Vol. 40, 1932, p. 302.

2. THE TRADE VOLUME *EX POST* AND *EX ANTE*

Having raised these questions we need not emphasize that the trade volume (T) in the equation of exchange is a complex quantity and that the definition of T encounters considerable difficulties.

We might avoid these difficulties by calling T the "goods sold." This solution, however, would help but little in analysing the goods side of the equation of exchange. "Goods sold" indicates *ex post* what has happened after the market forces of supply and demand have done their work, but it says very little about what may be expected to happen *ex ante* to production, supply, and the amounts of "goods to be sold" in the future. The "goods to be sold" may be a larger or a smaller amount than the "goods sold" and nothing is more vitally important in monetary policy than an estimate as to what the amount of T (or T_y) will be under the influence of changes in M or V (V_y).

It goes without saying that a definition of T as the "goods in existence" would be wrong since an overwhelming part of these goods does not enter into exchange at all. "Goods produced" is, as Professor Marget has pointed out, "at once too inclusive and not inclusive enough."³ The term is too inclusive because it counts products which have not been produced for the market, and it is not inclusive enough because the goods sold may consist partly of goods produced in preceding periods.

Also included in T are securities, new and old, and like goods, new and old, they have to be counted as often as they are sold (or intended to be sold).

Our conception of T , as seen *ex ante* and implying therefore the possibility of increased or decreased production and supply of goods (T , in other words, not only as the whole of the supply

³ A. W. Marget, "The definition of the concept of a 'velocity of goods,'" Part 2, *Economica*, August 1933, p. 280.

curves in the different markets of the economy but also implying possible shifts of these curves) may best be expressed as the physical volume of "goods (and securities) intended for sale"⁴ under varying circumstances, as compared with *T ex post* which stands for the physical volume of goods (and securities) actually sold.

It is very difficult to estimate the amount of goods intended for sale, or *T ex ante*, at least as long as we have to consider situations in which full employment does not exist. But even with full employment, that is, without unused resources, it is impossible to anticipate exactly the quantity of goods offered for sale, since it is subject to uncertain developments resulting from either (a) a widening out of the economic process, typically given in the case of population growth, or (b) an increase in productivity, brought about by a relative increase in the available capital goods or by a change in the technical arts.

Further considerations will show that the increase in the amount of goods offered for sale has to be examined from the standpoint of whether it is the result of one or the other of these fundamental changes if monetary policy is to be properly calculated. It is very likely that monetary measures will have to differ according to the causes to which the changes in the trade volume have to be ascribed.

A substantial increase in the amount of goods intended for sale is to be expected if we assume that factors of production have been unemployed and that forces (for example, expansion of demand) on which their re-employment depends are at work. To what extent these forces are of a monetary character is a crucial question of modern monetary theory.

Whatever the answer may be, it is important to analyse the amount and the character of the unused resources and to

⁴ A. W. Marget, "The definition of the concept of a 'velocity of goods,'" Part 1, *Economica*, November 1932, p. 434.

estimate the productive reserve which they represent. We should not overlook the following facts.

The unused means of production have to be technically complementary in regard to demands which might develop. The adjustability of the available agents of production to each other and to changes in demand depends on their peculiar character, that is, on the degree of specialization. Thus the availability of unemployed factors of production is in itself no proof of a given productive capacity. One single complementary factor which is lacking, or a change in the character of demand, may alter the situation entirely and give rise to so-called bottle-necks.

These arguments hold true as long as we have to produce and to offer for sale those goods for which a demand of a certain nature is anticipated. It goes without saying that the quantity of goods produced can be increased if public works expenditures are purposed simply to stimulate utilization of the existing means of production. In this case we adjust the aims to the means, this being one of the fundamental differences between the planned and the unplanned sector of the economy. Another distinction which is important for our present problem is that the character of government expenditures is often such that the goods or services produced are not intended for sale and to that extent are partly irrelevant for the goods-side of the equation of exchange.

3. THE MAIN PROBLEMS REGARDING THE MONETARY INFLUENCE ON PRICES AND PRODUCTION

In contrast to the tremendous literature on the monetary factors of the equation of exchange surprisingly little has been written about the "trade volume." This may be partly due to a tendency to think of the trade volume as a given quantity to whose variations the monetary factors have to be adjusted. The existence of certain aims of monetary policy, on the other

hand, indicates that people have had more or less consistent ideas regarding monetary influences on the volume of trade, which implied that trade would be adversely affected should a certain monetary policy not be adopted. The bimetallists, for example, tried to prove that the scarcity of gold was bound to lead to deflation and depression, that the volume of trade depended on a "normal" supply of money.

Analysis of the nature of the mutual relations between money and trade volume has also suffered from excessively generalized terminology and procedure. A common mental process has been to proceed from an assumption as to the equilibrium adjustment between the quantity of money, the total volume of transactions, and the price level, to the conclusion that the analysis of individual price making processes is the subject matter of the theory of value, in contradistinction to the theory of money which is supposed to explain those general movements of the price structure which cannot be explained by reference to relative and counterbalancing individual price movements. Thus the province of monetary theory was arbitrarily limited to the determination of the monetary multiple in terms of which relative prices are translated into absolute figures. This was a sterile approach since the most important effects of changes in the quantity of money or its velocity of circulation are not changes in the general price level but changes in the trade volume as a whole as well as in the relative structure of prices and production.

The reactions of the economy to changes in monetary factors are manifold and include some of the most important problems of economic policy. We have not yet reached the point where a discussion of these problems should be undertaken. But it is not too early to mention some of these questions in order to show the inadequacies of purely monetary theories of economic relations; this means, however, that we go far beyond the limits of the theory of value of money.

(1) Market demand is the amount of any given good buyers stand ready to purchase at a particular price, at a given moment or during a given period. Thus, as the quantity of money at the disposal of individuals increases, the number of units of money exchanged against any given amount of different goods tends to increase; but there is no reason to expect that all prices will change in the same proportion. It is important to note that the increased quantity of money is, in all probability, distributed in a way which will alter the relationships between demands for different goods. Those persons receiving larger incomes will be able to increase their demands as compared with those of others whose fixed money income will buy less than before. Production has naturally to be adjusted to the changed relative demands.

(2) If the newly created money takes the form of loanable funds given to entrepreneurs, it will stimulate the production of capital goods. For our present purpose it makes no difference whether we like or dislike the indicated effect once we admit it. At the moment we are only interested in the statement that a change in the monetary factors (M or V) may alter price relations and the structure of production, and that these variations may be much more important than the more or less incidental variations of the general price level.

(3) These changes in the structure of relative prices can take place as a result of monetary influences even without changes in the general price level. They may occur if production increases and the amount of money is correspondingly increased with the ostensible intention of stabilizing the general price level. Because the newly created money can probably not be distributed in such a neutral way that it will fail to alter existing demand and price relationships, it is difficult to decide which policy is the best: the policy of stabilizing the price level or the policy of attempting not to disturb established price relationships.

(4) The purely monetary approach tends to recognize only one kind of deflation, the decline of the general price level. An analysis of the relative price movements, however, may reveal two vastly different cases. It may be that prices are artificially reduced by deflationary monetary policies but that the reduction of cost prices lags; or it may be that technological improvements bring costs down first with prices of products following because of competitive pressure. It is evident that the first case is dangerous and should, if possible, be avoided, but that the "deflation" of the second case may be comparatively harmless. A monetary policy which does not make this important distinction can hardly be regarded as reasonable.

(5) One of the main questions of monetary policy concerns the possible increase in the social product resulting from an increase in monetary demand. Will the effects of this increase upon production and employment be strong enough to offset the inflationary effect of rising prices resulting from the newly created money? Whatever the answer may be, it is clear from the outset that it will depend on the nature and amount of the unused resources of the economy which may be put to work under the inducement of an increased money supply. The economic system becomes more and more vulnerable as it approaches full employment. Only a careful analysis of the given situation can help to determine what monetary measures should be adopted.

4. THE NATIONAL INCOME

The trade volume T , the physical volume of goods intended for sale, includes all goods, services and securities which are supplied on the markets of the economy during a given period. It includes all different stages of production and marketing. Goods, new and old, are counted whenever they are supplied.

Distinctly different from the volume of trade is the real national income of the economy, the T_v of our income equa-

tion. The income equation excludes intermediate business transactions, that is, money expenditures which are not expenditures of net-income.

The attempt, however, to distinguish income transactions from money transactions in general is only the beginning of the difficulties which we face if we attempt to define T_y .⁶ The annual money income of the economy ($T_y P_y$) is, for example, not the money value of annual output. It does not include the part of the real flow of goods and services which is either consumed without being sold (services of durable goods consumed by their owners) or bartered (remuneration in kind to agricultural labor) or added to the inventories of the economy.

Further problems arise when we try to distinguish gross-income and net-income. It is comparatively easy to ascertain those money incomes which are considered as cost items from the standpoint of the business man (wages and salaries, rents, interest payments). The profit income of the entrepreneur, however, is difficult to determine because of the necessary deduction of such elusive items as allowances for depreciation and obsolescence.

Then there is the danger of double counting not only in the case of the business firm and its owners but also in connection with so-called "transfer" incomes. The government transfers part of the taxpayer's income to the man on relief. If these relief payments are considered as the end of a money circuit, the taxes do not have to be included in the taxpayer's income, though the process of transfer has to be treated as a lengthening of the money circuit.

⁶ Consult the following: Gottfried von Haberler, "National income, saving, and investment," in *Studies in Income and Wealth*, Vol. 2, National Bureau of Economic Research, New York, 1938; *Prosperity and Depression*, third edition, Geneva, League of Nations, 1941, pp. 178-180; G. Colm, "Public revenue and public expenditure," in *Studies in Income and Wealth*, Vol. 1, National Bureau of Economic Research, 1937; M. Curtis and H. Townsend, *Modern Money*, New York, Harcourt, Brace & Co., 1938, chapter 3.

Another part of the government's tax income may finance government activities which have to be considered as "collective" costs, incurred with the purpose of increasing the productivity of the economy. To add these "cost-services" to the real national income which they are supposed to increase would again be double counting. How, furthermore, should we treat a net addition to the nation's real capital such as a new school building, and should we include government services in T_v despite the fact that they are most often collectively paid for and not capable of commanding a market price?

If newly created money is spent by the government or by private entrepreneurs, the money income of the economy has obviously been increased without immediate change in the real flow of goods and services. When this new income is spent, however, prices will tend to rise unless the effect of the re-spending increases the real flow of goods and services.

It has to be noted that the national income is, as a rule, larger than the amount of real goods and services consumed. The national income is composed of consumers' goods and producers' goods. It is therefore not correct when the T_v of the income equation is identified with the supply of consumers' goods alone, and when V_v is defined as the circular movement of money from ultimate consumer to ultimate consumer.

Chapter 8

PRICE LEVELS

1. RELATIVE AND GENERAL PRICE MOVEMENTS

The great advantage of the money economy is that it allows us to express the exchange value of any good by its price, the amount of money for which the unit of the good may be exchanged. But unfortunately we are not able to do that with money, for since prices are measured in units of money, the price of money is always unity and thus nominally constant at all times. By comparing the unit of account with the monetary units of other countries we cannot solve the problem either, because we must then immediately ask how the values of these other monetary units are measured.

Because the exchange values of goods are expressed in units of money we can, conversely, express the exchange value of money by the amount of goods which may be exchanged for the unit of money. The unit of money represents a claim to more goods of any kind when prices are low and to less goods when prices are high. But the innocent simplicity of this way of expressing the value of money disappears when we attempt to translate it into actual quantities, because there are many goods which we may wish to exchange for money, and the individual prices of these goods do not always change in the same degree or even in the same direction. If the prices of different goods would not vary in their relation to each other, we could measure the fluctuations of the value of money by any article we might choose, just as in times of hyper-inflation in Germany the price of bread was used to indicate roughly the momentary state of the depreciation of money (the depreciation was so great that relative variations of individual prices lost their

practical significance). But the functioning of the social order known as capitalist economy depends on relative variations of individual prices and on the accommodation of production to these ceaseless changes. It is impossible, therefore, to measure the exchange value of money by the number of units of money required for the purchase of a unit of some particular commodity. Even the inclusion of several articles would not solve the problem since in all likelihood the variations of their prices would be very imperfectly correlated with, and in some cases contradictory to, variations of other prices.

These considerations suggest that it would be best to consider as many prices as possible—to include the prices of all commodities, services, rights and titles, which are subject to monetary transactions and thus hope that these difficulties might be resolved by the laws of large numbers. It may seem consistent to choose the most general average of prices as an expression of the variations in the value of money.

The consistency of this procedure is dubious, however. There is no such thing as a social economy which single-mindedly exercises economic value judgements; the collective valuations reflected in market prices are in reality the reconciliation of great numbers of disparate individual valuations. Nevertheless the general average of prices might be acceptable if we could assume that everyone's choice of goods conformed fairly closely to a typical random selection, represented more or less accurately by the all inclusive average. But this is an assumption which we are not entitled to make. Different persons are interested in entirely different kinds of goods, and there is no reliable tendency towards a random choice, which would cancel out the relative price movements according to the statistical law of error.

2. PRICE AVERAGES AND MONETARY POLICY

Mr. J. M. Keynes believes that there need not be any doubt as to what we mean by the purchasing power of money. We

mean, he says, an average of consumers' goods prices Mr Keynes is so convinced that this is the price level "*par excellence*" that he does not bother to offer an explanation ¹

An explanation could perhaps be sought in the fact that everyone is a consumer and is, therefore, interested in consumers' goods prices while, as producers, different people are interested in very different groups of prices or it can be argued that the production of consumers' goods is the ultimate aim of the economy and that we are, therefore, predominantly interested in the amount of consumers' goods a unit of money can buy If it should be declared the objective of monetary policy to stabilize consumers' goods prices, that is, to keep the dollar equivalent to an ideal market basket dollar, then it would be obvious that a representative assortment of consumers' goods in the retail market would serve our purpose It is no foregone conclusion, however, that the stabilization of a market basket dollar is an adequate objective of monetary policy Many other objectives can be named It is doubtful, furthermore, whether consumers have much influence on monetary policy Monetary policy is more likely to be influenced by those politically articulate groups which have an interest in special price movements Laborers are interested in wages, investors in interest rates and security prices, entrepreneurs in their particular product prices, on the one hand, and in the cost level, on the other, and exporters and importers in exchange rates and the prices of internationally traded goods These pressure groups may influence monetary policy which will then hardly be able to serve all purposes at the same time by stabilizing, increasing or decreasing one general price level

Price levels, and index numbers by means of which they are conveniently expressed, can be useful for some purposes of monetary policy, but there is little to the idea of a price level

¹ J M Keynes, *A Treatise on Money*, Vol 1, p 54

par excellence, unless we have specific policy objectives in mind. Monetary policy may have numerous ends. For example, the intention of the monetary authority may be, alternatively: to stabilize the price level of consumers' goods (and increase wages); to stabilize money wages (and let prices of consumers' goods fall); to stabilize, increase, or decrease the general price level (in connection with variations in foreign exchange rates); to decrease the price level of export goods (in order to carry out unilateral foreign payments, such as reparations); to stabilize or change the relationship between consumers' goods and producers' goods prices; to stabilize by any means the general price level (even if it should mean a manipulation of the rate of interest); or to keep money absolutely neutral and not to influence the rate of interest (even if the general price level should fall).

These different problems of monetary policy will be dealt with later on. Here we are interested solely in the fact that different monetary policies not only imply a specific, unambiguous attitude towards a certain price level and its variations, but also that they require the selection of quite different price averages for their guidance.

Many writers have failed to see this problem at all and some others have attempted to evade it by the argument that it does not make much difference which average we choose since "it is a curious fact . . . that index numbers of different types agree with each other remarkably well whatever the formula for calculation, the method of weighting, the number of commodities, etc."² Very often, however, these authors confuse the statistical technique of making index numbers with the much more fundamental problem of finding the prices which are representative of those variations which the monetary policy tries to regulate.

² Irving Fisher, *Stabilizing the Dollar*, New York, Macmillan, 1920, p. 148.

Mr. Keynes³ has shown that a policy which had aimed at stabilizing the wholesale price level over the past fifty years would nevertheless have caused the Snyder index, the general price index calculated by the Federal Reserve Bank of New York, to rise by 50 per cent; conversely, a policy aimed at stabilizing the Snyder index would have caused the wholesale index to fall by one-third. The difference is mainly due to the fact that Snyder's index includes wages, which are not included in the wholesale price index. Since wages increase relative to commodity prices in consequence of a general economic development, a tendency to stabilize wages would necessarily have caused a deflation of commodity prices, while stabilization of commodity prices would have necessitated an increase in wages.

So far we have reached the conclusion that index numbers should be chosen and calculated to suit certain particular purposes of monetary policy and that there exists no general average of prices which is, *a priori*, and *par excellence*, the expression of the value of money. We may even doubt that we are primarily interested in finding such an expression. It is probably an overstatement, but nevertheless very interesting, when Professor Hayek says "the problem is never (?) to explain any 'general value' of money but only how and when money influences the relative values of goods and under what conditions it leaves these relative values undisturbed . . ."⁴ Professor Hayek goes too far when he proposes that we should throw over-board the concept of a general price level. He forgets that sometimes we are forced to think in terms of variations of a general price level, as is the case when inflationary or deflationary tendencies are in question. Whether or not we can do so safely depends in part upon the degree

³ *Treatise on Money*, Vol. 1, p. 61. See also Carl Snyder, "The measure of the general price level," *Review of Economic Statistics*, February 1928, pp. 40-52.

⁴ F. A. Hayek, *Prices and Production*, p. 27.

in which relative price movements diminish in significance as compared with the general tendency. One need not be dogmatic to grasp the simple truth that price averages are useful but dangerous in careless or incompetent hands.

For general purposes of monetary theory and policy, however, it remains true that the idea of stabilizing a general price level should be abandoned, and that we should substitute a careful analysis of relative price movements, which are indicated by special averages.

Since we have not yet discussed the main objectives of monetary policy, we shall only try to indicate some of the theoretical problems which confront us in connection with the representativeness of averages which may be chosen for particular purposes.

Professor Irving Fisher, for example, chooses a wholesale price index in preference to retail prices and wages in order to emphasize those goods whose prices are sensitive to monetary influences. Professor Gunnar Myrdal, on the other hand, comes to the conclusion that it is important to watch those monopolistic prices which do not readily respond to changes in the money supply. Instead of proposing, as Professor Fisher does, the stabilization of sensitive prices, he wants to have the sensitive prices adjusted in such a way as to maintain a reasonable equilibrium in the structure of relative prices.⁵

Another difficult question concerns the advisability of the creation of new money when the general price level P (which purports "to include all the things which are subject of exchange in the economic world"⁶) tends to fall. If we could rely on the wisdom of price stabilization as the major objective of monetary policy, the answer would be comparatively simple. Assuming V to remain the same we should have to

⁵ See Gunnar Myrdal, *Monetary Equilibrium*, London, William Hodge & Co., 1939, chapter 6.

⁶ D. H. Robertson, *Money*, p. 21.

increase M to compensate for the increase in T which was the cause of the fall in P . If, however, the objective is "neutrality of money" or "the maximum sustainable utilization of the nation's resources,"¹ the problem is infinitely more complicated. These problems could not be solved by stabilizing the all inclusive average price level P . It is the relation between the prices of products and marginal and average unit costs of production that is the critical fact in determining whether deflation is dangerous or not. Falling unit costs lead, under competitive conditions, to decreasing prices. To increase M in order to compensate for the increase in T and to halt the tendency towards a fall in P may cause a disturbance in the structure of relative prices and may cause effects very similar to those of a commodity price inflation. If, however, the increase in T is due to population growth rather than to technological improvements and is therefore not accompanied by decreasing average unit costs, or if monopolistic price policy prevents the competitive price fall due to increased efficiency of production—then we have to come to entirely different conclusions. The measures of the monetary authority now have to be distinctly different from those adopted in the former case though the objectives of monetary policy (e.g., neutrality or full use of resources) may remain the same.

These considerations make it obvious that such a simplified objective as the stabilization of an all inclusive average price level P or of a market basket dollar is hardly satisfactory and that a great variety of special price averages (wholesale, retail, consumers' goods, producers' goods, wages, monopolistic prices, competitive prices, domestic goods, internationally traded goods) will serve much better the more ambitious schemes of modern monetary policy.

¹ See "Objectives of monetary policy," *Federal Reserve Bulletin*, September 1937, p. 827f.

3. DIFFICULTIES CONCERNING AVERAGES OF CONSUMERS' GOODS PRICES

Though we have already seen that an average of consumers' goods prices can hardly be considered the price level *par excellence*, we shall use this price level to point out some additional difficulties which we have to face even if we should have already decided in favor of one particular price average.⁸ Again we have to ask which commodities should be selected. Different combinations of commodities and services may be representative for approximately the same classes of people under different climatic and social circumstances. Certain kinds of goods may be entirely unnecessary in one place and may cause considerable expenditures in others; tariffs and transportation costs influence prices and demand; and goods which are superficially identical may be of different quality. This problem of changing quality is one of the acute difficulties encountered in attempting to compare price levels at different points of time. Not only will goods of the same kind change their character (like car models of different years) but many new goods will appear while other goods, once important, go the way of the moustache cup.

An even more complicated problem arises from the comparison of different people's subjective valuations which is implicit in any average of consumers' goods prices. Strictly speaking everybody has a particular selection of goods which he is interested in, and even this individual price average changes with alterations in his tastes, income, and surrounding circumstances. Thus we not only have to choose representative goods but also representative groups of people, notwithstanding the fact that there are hardly two groups in two countries or at different points of time which correspond exactly as to their economic and social situations. The money

⁸ Consult in this connection the excellent book by Gottfried von Haberler, *Der Sinn der Indexzahlen*, Tübingen, Paul Siebeck, 1927, p. 77ff.

income of approximately the same group will not only differ in its absolute height but also in its meaning if we consider its relation to the income of other groups or the relative disutility of earning it

The difficulties of statistical computation of index numbers are of minor importance compared with these fundamental problems. Different methods (arithmetic, geometric, or harmonic mean) may be employed according to the specific purpose for which the numbers are intended. For most purposes a weighted arithmetic mean is satisfactory. The prices in this case are multiplied by weights corresponding to their relative importance, the products are added, and the sum is divided by the total of the weights. The selection of prices and weights is the task of the economist who, in doing so, encounters the numerous theoretical difficulties which have been described above. It must be emphasized that we cannot evade these difficulties by the mere improvement of statistical technique. W. T. Foster's remark that "an index number may be so dependable that the instrumental error probably seldom reaches one part in 800, or less than three ounces on a man's weight" is, therefore, a great overstatement.⁹

⁹ W. T. Foster in his prefatory note to Irving Fisher's *The Making of Index Numbers*, Boston, Houghton Mifflin Co. 1927.

Chapter 9

THE METALLIC STANDARDS

1 MONEY AND THE STATE

The proposition of the "state theory of money" that "money is a creature of law"¹ is an overstatement, although it may pass as a generalization where the state really regulates the whole monetary system. G. F. Knapp asserted that the state secures the *validity* of money. The term validity has been interpreted in different ways.² Some writers have explained Knapp's statement as the truism that the state is able to determine the face value of money by naming the unit of money, whereas others believed that Knapp meant to say that the state can determine the purchasing power of money by mere fiat. The latter interpretation is certainly wrong. Knapp did not believe that the state establishes a certain purchasing power by mere assertion of its will. He argued that the state ensures the validity of money (whatever that may be) by accepting it at its nominal value. It is the "primary, most indispensable and fundamental doctrine,"³ he said, that "first and foremost money frees us from debts towards the state."⁴ If we add that the state does not only receive money at par but declares also that it has to be accepted by creditors at face value in discharge of debts, we understand that the state ensures the circulation of money of its choice at face value.

¹ G. F. Knapp, *The State Theory of Money*, London, Macmillan, 1924, p. 1.

² See Howard S. Ellis, *German Monetary Theory*, p. 13ff.

³ G. F. Knapp, "Staatliche Theorie des Geldes," *Handwörterbuch der Staatswissenschaften*, 4th edition, Vol. 4, Jena, 1927, p. 753.

⁴ G. F. Knapp, *The State Theory*, p. 52.

The face value of money, however, is not its purchasing power. The state secures the face value of money by accepting it or forcing it upon creditors at this value, but ensures a certain purchasing power by regulating its quantity. Different monetary standards are fundamentally nothing else but different methods of limiting the total quantity of money. It is the greatest shortcoming of the state theory of money that it ignores entirely this most important part of state activity in the monetary field, and it is because of this negligence that the state theory has been held responsible for modern inflationary tendencies.

In times of hyper-inflation it can clearly be seen that the purchasing power of money may decrease indefinitely whilst the face value of money remains the same, giving debtors the possibility of discharging debts at a small (and even an infinitesimally small) fraction of their previous value in terms of purchasing power.

Such an inflationary process may lead later on to the repudiation of money by the people in spite of its legal tender quality, and the mere possibility that this may happen is a fatal defect in the state theory of money.

More interesting than this extreme possibility, however, is the fact that it takes a long time, and requires a considerable degree of inflation, before the public will refuse money. After all, money will only be refused by the public when its functions can be secured in a better way, that is, when other means of payment (which are not subject to depreciation) are available or when superior methods of exchange have been developed. The development of alternatives depends on the sensitiveness of the society to inflationary measures (which sensitiveness is mainly due to past experience) and on the completeness of the monetary control established by the state. In order to prevent attempts by the public to evade the mandate to accept legal money, the state may (in anticipation of a divergence of face value and purchasing power) prohibit the use of alternative

measures of value, for example, by forbidding "gold clauses" in existing or future debt contracts.⁵

The remarkable tenacity with which money, empowered with legal tender quality or convertible into such money, stays in circulation in spite of progressive depreciation of its exchange value shows clearly the monopolistic position of the monetary authority creating it. By determining the face value of money and by securing the acceptability of money at its face value wherever debts have to be discharged, the state gains control over the monetary circulation and thus lays the foundation for its regulative powers over the quantity of full-bodied money, token money, and deposit money.⁶

To say that money is a creation of law is correct when, and as long as, the state determines the face value of money, secures its acceptability, and regulates its total quantity so that the purchasing power of money is subject to automatic or deliberate control. The same proposition is utterly incomplete and even dangerous when it is not meant to imply effective quantitative control.

2. LEGAL TENDER MONEY AND STANDARD MONEY

In its historical evolution money may be said to have developed in response to the requirements of a progressively expanding market economy which, in turn, was dependent for its growth upon the increasing use of money. In the course of time, however, the state added a legal qualification to the economic factors conditioning the monetary circulation. The state created legal tender money by giving special kinds of money the privilege of being receivable at face value in unlimited amounts for the discharge of debts. Legal tender money is not necessarily standard or definitive money.

⁵ In the United States Congress voided the gold clauses in public and private contracts (June 5, 1933).

⁶ See chapter 3, section 4.

Standard money is money in which even the monetary authority "is entitled to make a final and ultimate discharge of its obligations, including the obligation to convert convertible money"⁷ If its convertibility is abolished, the previously convertible money (which may be legal tender money) becomes standard or definitive money

The unit of standard money, named by the state (dollar, pound, etc.), is, as a rule, the unit of account in which the exchange values are expressed as prices. The unit of account may remain the same for a long time whilst the standard money, embodying it, is subject to change. The unit of account, the dollar, has been embodied in many different kinds of standard money according to the different monetary standards of the United States

The absolute level of prices in terms of the unit of account indicates the purchasing power of money. Whatever the aims of the monetary policy may be, the pursuit of these aims involves either primarily or incidentally the regulation of the purchasing power of money, and we may therefore define "monetary standard" from the viewpoint of economics as the principal method of regulating the quantity and the exchange value of standard or definitive money. This regulation indirectly determines the total quantity of money since common money is either standard money or convertible into standard money and since deposit money is connected, if only loosely, with common money by reserve ratios which are either customary or fixed by law

3 THE MONOMETALLIC STANDARD

When the state, in selecting the standard money, chooses full-bodied money, it decides for a metallic standard. When only one metal may be coined in unlimited amounts and when the coins may be melted by the public, we have a monometallic standard, for example, the gold (coin) standard. The

⁷ D H Robertson *Money*, p. 48

value of the standard money is connected with the value of the metal, and the unit of account is established as a piece of the standard metal, of specified weight and fineness. If circulation of full-bodied money is not intended, practically the same connection between standard money and the standard metal may be secured by the provision that standard money may at any time be converted at a fixed ratio into bullion and that bullion may be exchanged at any time at the same ratio into standard money. The value of token money is thus tied to the metal and not free to move independently. Such a standard may be called a bullion standard. If the standard money is not convertible into bullion but into foreign exchange, being thus connected indirectly with the metal (gold) reserves of other countries, we have a metal (gold) exchange standard.

The monometallic standard surrenders the exchange value of money to the fluctuations of the value of the metal, though naturally the price of the weight unit of the standard metal, expressed in units of the standard money, remains constant. The value of the standard metal in a modern monometallic system depends at least as much on monetary management as on the monetary supply of the standard metal. This is so because the value of money is determined partly by its quantity and because the quantity of money in circulation depends on the whole monetary system, that is, on the superstructure of money which can be based on the metal reserve. The maximum size of the monetary superstructure is determined by the metal reserve behind token money, the metal reserve behind central bank deposits, the central bank reserve behind demand deposits, and the respective reserve ratios.

It has to be understood, however, that these and the following remarks do by no means exhaust the problem and the significance of the monometallic standard. At present we are concerned with the monometallic standard only as a domestic

monetary system. The much greater importance of the monometallic standard from the standpoint of international monetary relationships will be discussed in chapter 12.

The production of the standard metal is distinguished from most other types of production by the fact that the unit of weight of the product always has a constant price, being the unit (or a fixed multiple of the unit) of money itself. All other prices are expressed in terms of this unit, and among them also the costs of production of the metal. Let us assume that unusually large quantities of the metal have been produced and that, other things remaining equal, the value of full-bodied money in relation to goods and services has fallen. This means that the price level has risen and that the costs of production of the metal are higher than they had been previously, whereas the price of the product, being the unit of account, remains nominally the same. Under these conditions production of the metal becomes less profitable and will therefore be reduced. But we must not exaggerate the self-regulation of the production of the standard metal and assume an automatic tendency towards a stable value. The technique of production and the quality of the natural resources are independent and objective data of the greatest importance complicating this adjustment.

These remarks on the monometallic standard in a closed system (that is, in a system without international monetary relations) are of very limited theoretical interest for those who do not believe in the "commodity theory" of money. If it is obvious that we do not need full-bodied money in order to ensure the exchange value of money, we may well dismiss the whole idea of making the supply of money dependent on the supply of a standard metal, especially since we have seen that the total supply of money is as much a result of reserve rules and regulations and of the development of token money and deposit money as of the monetary supply of the standard metal.

However, the problem of the monometallic standard will have to be taken up again in connection with the discussion of international monetary relations. If many countries base their money systems on the same metal, the monetary metal supply for any one country may have an important regulative and equilibrating function to fulfill which is of much greater interest than the outmoded ideas of those who believe in the necessity of an intrinsic value of money or in the self-regulating forces of the production of the monetary metal.

4. THE BIMETALLIC STANDARD

In the case of the monometallic standard we have one unit of account and express all prices in terms of this standard unit. What has been said of one metal and its connection with the standard unit may be true of another metal and its connection with another monetary unit at the same time and in the same country. If there were no fixed ratio established between the nominal values of the two metals, the country in question would have two monetary standards (silver and gold) and two price systems (silver-dollar prices and gold-dollar prices) which would vary in relation to each other according to changes in the ratio of the values of the two metals. Since it is inconvenient to have two monetary systems which are independent of each other, it is understandable that monetary authorities faced with this situation should try to connect both standards by a fixed ratio. The whole problem could have been avoided, naturally, by choosing the monometallic standard, had it not been for the fear that the supply of only one metal could not satisfy the monetary demand without violent deflationary consequences. A progressively increasing demand for money, it was believed, had to be accompanied by a proportionate increase in the metal reserves, if a stable price level were to be achieved.

If two metals can be coined freely as standard money and if the ratio between the value of the two metals in terms of the

unit of account is fixed by law, so that there is only one standard unit and only one system of prices, then we have a bimetallic standard or double standard. This system works as long as the legally fixed ratio coincides with the real ratio between the international market values of the metals. As soon, however, as the legal (or mint) ratio and the international market ratio (that is, the mint or market ratios in other countries) no longer match, it becomes profitable to bring one metal to the mint and to export the other metal to countries where it commands a higher value. Let us assume that country *A* has a mint ratio between silver and gold of 15 to 1 (that is, its monetary unit consists either of 15 weight units of silver or of 1 weight unit of gold) and that country *B* has, at the same time, a mint ratio of 16 to 1 and that both countries are on the bimetallic standard, that is, that they are willing to coin either metal freely as standard money and to convert the money at the same ratio into either metal. In this case gold is more valuable in terms of silver in country *B* than in country *A*. Gold will therefore flow from *A* to *B* and silver from *B* to *A*. This process of arbitrage in the metals, as the formulation known as Gresham's law asserts, results in the displacement of the dearer metal by the cheaper one in the monetary circulation unless it is arrested by corrective changes in the respective mint ratios.

Gresham's law has often been discussed under the assumption that mint ratio and market ratio differ within one and the same country. This assumption cannot be made.⁸ As long as the monetary authorities in country *A* are willing to exchange standard money for either metal at the official ratio of 15 to 1, no one would give more than 15 units of silver for one unit of gold since he could get the gold at the mint for 15 units of silver.

⁸ See Lewis A. Froman, "Bimetallism—reconsidered in the light of recent developments," *American Economic Review*, Vol. 26, March 1936, pp. 53–61.

Only if country *A*'s government is not obliged to redeem gold coins in silver (or vice versa) is a divergence of mint and market ratio possible. Assuming that all gold has disappeared from circulation and gone to country *B* (which maintains a mint ratio of 16 to 1), *A*'s government no longer has gold available and there could develop, therefore, in *A* a market ratio which is different from the mint ratio. But in this case the bimetallic standard has already become a monometallic standard (at least for the time being) and the mint ratio has, therefore, no meaning. As a matter of fact, the so-called bimetallic standard (unless introduced on an international basis) exists in reality only during those transitory periods during which the official mint ratio happens to coincide with the international market ratio. As a rule the bimetallic standard is actually a monometallic standard, and the purchasing power of money is solely determined (as far as the influence of the standard metals is concerned) by the value of the metal which is relatively less valuable compared with its official or market price in other countries. Though the bimetallic standard is now actually a monometallic standard, it differs from the pure monometallic standard in that the abandoned metal remains potential standard money and may come back at any time as soon as its international price falls below the official domestic price. Generally it can be said, therefore, that under the assumption of a fixed mint ratio, the monetary service is performed by the metal whose domestic value is higher than its international value. Although the bimetallic standard cannot keep two kinds of full-bodied money in circulation, it has nevertheless an inflationary tendency because it automatically brings about the monetary use of the metal which is becoming cheaper on the world market (relative to the official domestic price).

It is said that the bimetallic standard has a tendency towards stabilizing a given ratio between the prices of the two metals because it increases the monetary demand for the metal whose

value is decreasing and decreases the monetary demand for the metal which has increased in value. If this "law of compensatory action" is supposed to work within a single country whose "market" ratio is assumed to differ from its mint ratio, it makes no sense, since the assumption of such a divergency cannot be made.

Speaking of different countries with different mint ratios it is to be assumed that each country will lose the metal which it has undervalued in terms of its mint ratio compared with the world market ratio and will attract the overvalued metal. It is, therefore, obviously impossible that the two different mint ratios should both be maintained by the law of compensatory action.

Assuming, however, the international adoption of bimetallism on a common mint ratio, the mint ratio would be secured anyhow, since divergencies between market and mint ratio would now be impossible for the world as a whole. If, under these conditions, the technique of production of one of the metals should change, so as to make it cheaper to produce, its production would increase, thus increasing the amount of money in circulation and the level of commodity prices. This again means an increase in the cost of production of the metals, and since the technique of producing the other metal had not changed, it is to be assumed that its production will decrease. It can therefore be argued that, under international bimetallism, the value of money, depending (among other factors) on the combined supply of both gold and silver, would tend to be more stable in terms of commodity prices than if it depended on the fluctuations of the production of one metal.

There exists an abundance of historical material showing how gold and silver alternated under the double standard. When the bimetallic standard was adopted in the United States in 1792, a weight unit of gold was worth in the market fifteen times as much as the same weight unit of silver and the ratio was therefore fixed in the statute at 15 to 1. But soon

after the establishment of that ratio the international value of gold increased. France, for instance, established a mint ratio of 15.5 to 1 in 1803. Thus gold left the United States and went to countries with a mint ratio above 15 to 1. In 1834 the mint ratio was fixed at 16 to 1 whilst the French ratio remained at 15.5 to 1, with the result that in the United States the gold drove the silver out of circulation. With the discovery of gold in California, Australia, and Russia the market ratio fell to 15.33 to 1 in 1853 and led to such an outflow of silver from the United States that an embarrassing shortage of silver coin for small change was created. The difficulty was overcome under the coinage act of 1853 by introducing silver coins which were not full-bodied and which could not be coined freely.

Another interesting example was given by both France and England in the beginning of the eighteenth century. France and England had established different legal ratios (France 14½ to 1 and England 15.2 to 1) and consequently gold displaced silver in England whilst the opposite was true for France.

Even an international agreement between France, Italy, Belgium and Switzerland in 1865, the so-called Latin Union, could not maintain the bimetallic system. When silver was demonetized in other countries and its production was increasing rapidly, the countries of the Union had to abolish the free coinage of silver (1874). Silver coins were legally defined to be token money; but silver nevertheless retained its status as standard money, so that the Bank of France had the right to redeem convertible money either in gold or in silver. This state of affairs has been called the limping standard to indicate the crippled nature of the silver "leg" as compared with the gold "leg."

The idea of an international double standard has been persistently advocated. By historical coincidence the demonetizing of silver during the seventies occurred at the time of a severe agricultural depression in Europe which was

aggravated by the competition of exports of the bumper grain crops of the western hemisphere. The price decline was popularly explained, however, as being the result of the introduction of the gold standard in a number of countries and the consequent shortage of gold. It was true that for a short period (during which the domestic commodity prices of the silver countries had not risen enough to compensate for the depreciation of silver) the gold standard countries could buy cheaply from the silver standard countries. This transitory situation, however, could never justify the bimetallist idea.

A broad international agreement concerning the mint ratio could certainly overcome the main difficulty of the bimetallic standard. An international mint ratio could be maintained without interference by a 'market ratio' since nobody could buy gold or silver for less than the official price (the seller always having the chance to sell to his government at the official price). The difficulties of the international bimetallic standard are mainly political. It is very unlikely that an international agreement could be reached regarding a question in which countries without silver production or monetary stocks of silver are not in the least interested.

The main argument against international bimetalhism, however, is the fact that a shortage of gold could be remedied either by different devices of economizing gold reserves or by the adoption of a managed standard.

5 FIDUCIARY COINAGE

The difficulties of the double standard are helpful in illuminating the principles of fiduciary coinage. No convenient monetary system can dispense with the minting of several metals since gold coins of low denomination would be too small and full bodied silver coins of high denomination too large. The difficulty is overcome easily by the following principles and regulations.

(1) The fiduciary coins are not full-bodied. Their metallic value is so low as to eliminate the danger of their being privately demonetized, even if the market value of the metal should increase considerably.

(2) The legal limitation of the amount of fiduciary coins prevents them from causing undesirable fluctuations of the purchasing power of money. The limitation of their circulation can only be secured if their free minting is forbidden.

(3) The fiduciary coins are not definitive money but are convertible into definitive or standard money. This secures their par value.

(4) It may be mentioned as a point of minor importance that the legal tender power of fiduciary coins is often limited to certain amounts to protect the public against inconvenient means of payment.

Chapter 10

PRICE STABILIZATION AND NEUTRAL MONEY

1 METALLIC STANDARDS AND MANAGED STANDARDS

The monometallic standard, of which the gold standard of pre-1914 years is a distinguished example, places monetary policy in an essentially passive relation to fluctuations in the value of the standard metal. If new gold deposits are discovered, or improved mining and metallurgical techniques are developed, the resulting increase in the production of the metal is supposed to exert its inflationary influence upon the income and commodity price structure virtually unhampered by monetary authorities. To be sure, the game does not have to be played in accordance with the rigid rules of the old gold standard. But the farther the authorities go in preventing purely automatic and passive responses of the economy to changes in the value of gold, by so much is the system transformed from one of monometallism into a type of managed monetary standard.

Managed standards and metallic standards are not distinguished by the standard money they use. The metallic standard may use convertible token, instead of full-bodied money (bullion standard), and it may even happen that inconvertible token money is managed to coincide in value with that of a metal. But neither do the instruments of monetary policy differentiate these two standards. No standard can dispense with the regulation of the total quantity of money, and the instruments applied to this end—such as discount and

open-market operations—are independent of the standard they serve.

The distinguishing features are to be found in the dissimilar aims and methods of monetary policy under managed and metallic standards. Various as the aims of managed standards may be, they all stand on the common ground that the quantity of money is regulated according to plans and decisions of the monetary authority. Different aims of monetary management imply different methods. The metallic standard, on the contrary, makes the regulation of the quantity of money a matter not of human judgement, but the largely passive subject of forces beyond deliberate human control. The law may, with some foresight or luck, adopt ratios between standard and token money and between standard and deposit money which result in a nice accommodation of the monetary requirements of the economy. But the theory of such a system is that the economic consequences of its operation should be accepted, however intolerable they may be, without interference or attempted corrective action.

2. VARIOUS MONETARY OBJECTIVES

Once we abandon the passive attitude which is implied in the idea of metallic standards and accept a managed standard, we are confronted with many possible objectives of monetary policy. Among these objectives we can distinguish three main types, known as

- (a) Price stabilization;
- (b) Neutrality of money; and
- (c) Maximum utilization of resources.

The last type is obviously the most important and ambitious. It includes such aims as economic stabilization (instead of merely price stabilization), full employment, and maximization of the national income. The other two groups include aims which seem to be easier to define and also easier to reach. The comparative modesty of their aims is due either to the

belief that the policy in question (price stabilization, neutrality of money) would actually solve most of the problems connected with economic depression or stagnation by eliminating the major cause of economic fluctuations; or it is due to the opinion that price stabilization or neutrality, though not in themselves sufficient guarantees for economic stabilization, is definitely all the monetary authority can contribute towards the solution of the problems of general economic policy.

The following sections of the present chapter are devoted to a discussion of price stabilization and neutrality of money. Clarification of the role of money in connection with the broader issue of economic stabilization is the chief aim of the rest of the book.

3. TWO TYPES OF PRICE STABILIZATION CONSIDERED

In an unbalanced world, suffering from alternate shocks of inflation and deflation, it might seem that the value of money should be kept completely stable and that money should be prevented from exercising disturbing and disruptive influences upon the economic system. Much can be said indeed for a stable value of money. That the unit of account should not fluctuate widely in its purchasing power is, in many respects, so true that we may be tempted to break off the discussion at this early point, arguing that the stabilization of the value of money is the only sensible monetary policy. This, however, would be a much too hasty conclusion. We have already seen that the definition of a stable value of money is beset with the greatest theoretical and statistical difficulties. The answer, which seemed to be so clear and simple, turns out to be very complicated as soon as the further question is raised as to which of several criteria of a stable value of money should be used. The quantities of money to be added to, or taken from, the existing stock of money will depend entirely on the char-

acter of the price average which we want to stabilize. There is no doubt that stabilizing efforts guided by different price averages cannot have the same effect upon the economy under the same set of circumstances.

We have to ask, furthermore, whether monetary disturbances of the economic system are due only to fluctuations in the general price level. The answer is without any doubt that this is not the case. Theoretically, general price changes might be harmless as long as they do not materially alter the relationships between particular prices in the economic system. It is true that this is not likely to happen. But it is, then, the *relative* and not the *general* price movements, through which monetary policy influences the economy. On the other hand we have to note that monetary causes may change relative prices without changing the general price level.

Finally we shall have to ask whether an addition to, or a subtraction from, the existing quantity of money can be compatible with the ideal of a perfect neutrality of money.

The aims of price stabilization and of neutrality of money are not identical.¹ What both proposals have in common is that they seek to relegate money to a wholly passive role in economic affairs. Both are, in one sense, policies of neutrality: the policy of price stabilization aims at the neutrality of money as the unit of account by preventing changes in the *general* price level, i.e., changes in the value of the unit in relation to which the values of all other goods are expressed; the other, the neutrality policy strictly speaking, aims at neutrality of money towards the economy by preventing changes in the total effective quantity of money, i.e., by keeping the media of exchange from having a disruptive influence upon the structure of *relative* prices. Both aims, taken together, would amount to the stabilization of money in its two func-

¹ See F. A. Hayek, *Prices and Production*, Lecture I; *Monetary Theory and the Trade Cycle*, chapter 3.

tions as a unit of account and as a medium of exchange.² But we shall see that both aims are in many cases incompatible with each other so that we might neutralize money in one or the other of these ways but not in both at the same time, save in particularly favorable situations.

In discussing price levels we reached the conclusion that index numbers should be chosen and calculated to suit specific purposes of monetary policy, and that there exists no average of prices which is, *par excellence*, the measure of changes in the value of money. We have to know what we want to stabilize before the criteria for a program of stabilization can be selected.

The intention may be to stabilize the purchasing power of money in terms of prices of consumers' goods and personal services, so that our income dollar will buy the same average amount of consumers' goods all the time. Improvements in the standard of living, due to increased economic productivity, must, then, take the form of increased money incomes rather than decreasing prices of consumers' goods. It is evident that this policy necessitates a manipulation of the quantity of money. The increase in the quantity of goods offered for sale has to be compensated by an augmented flow of money if their prices are to be stabilized.

The advantages of a stabilization of consumers' goods prices may be found in the following considerations.³ If stress is laid on the function of money as a "standard of deferred payments," it may be argued that inequitable changes in the worth or burden of contracts, due to monetary fluctuations, are prevented if money is able to buy the same amount of consumers' goods at the beginning and at the end of the con-

² See J. G. Koopmans, "Zum Problem des 'Neutralen' Geldes," in F. A. Hayek, *Beiträge zur Geldtheorie*, p. 246ff.

³ See Gottfried von Haberler, "The different meanings attached to the term 'fluctuations in the purchasing power of gold,'" *Memorandum submitted to the Gold Delegation of the League of Nations*, Geneva, 1931.

tract period. More important is the fact that an increase in real income takes the visible and satisfying form of an increase in money wages, as compared with that of decreases in consumers' goods prices. The leaders of modern labor unions certainly prefer an increase in real income which is at least partly brought about by increasing money wages.⁴ Entrepreneurs also are favorably inclined towards a policy which prevents prices from falling, increases purchasing power in the hands of consumers, and accommodates the always existing pressure for higher wages by an increase in the quantity of money, that is, by an increased supply of loanable funds at declining rates of interest.

There are drawbacks to this policy of stabilizing the level of consumers' goods prices, however. If a period of increasing productivity is assumed, the stabilized price level of consumers' goods prevents all those who have fixed incomes from sharing the fruits of progress which they would have enjoyed proportionately with others if the price of consumers goods had fallen.

Another objection to the stabilization of consumers' goods prices is implied in the theory of neutral money. If increasing productivity lowers the unit costs of production and if, nevertheless, the prices of the products are stabilized, then the profit margin is artificially increased. The additional supply of money at the same time lowers the rate of interest. These tendencies, it is said, may disrupt the structure of relative prices and violate the very principle of neutral money. This shows again that the aims of price stabilization and neutrality of money are not always compatible.

⁴ "Now ordinary experience tells us, beyond doubt, that a situation where labor stipulates (within limits) for a money wage rather than a real wage, so far from being a mere possibility, is the normal case." J. M. Keynes, *The General Theory of Employment, Interest and Money*, p. 9. See also Arthur D. Gayer, *Monetary Policy and Economic Stabilization*, London, Macmillan, 1935, p. 246.

The alternative is a price level "varying inversely with the productive power."⁵ All the income recipients take part in the improvements relative to their incomes whilst consumers' goods prices drop according to the improvements in the technique of production and organization. The amount of money does not change more than is necessary to keep wage rates stable. Stable wage rates and decreasing prices of the products do no harm to producers because the unit cost of production will also have declined. Creditors gain whilst debtors, with increased real incomes, are not really "pinched" when they pay back higher amounts in terms of purchasing power.

In comparing the alternative policies we see that the one is more advantageous for debtors, labor leaders, and entrepreneurs, whereas the other is favorable to the interests of creditors and people with fixed money incomes. Under these conditions it is hardly doubtful what the political outcome will be: the pressure of those interested in an increased money supply is likely to be victorious especially when the monetary authority insists on identifying price stabilization with economic stabilization.

One compromise solution would be the stabilization of a price average in which wages were included and given a relatively large weight. This procedure would increase the money supply with increasing productivity but not by as much as is implied in the stabilization of consumers' goods prices. Real wages have a natural tendency to increase in consequence of increasing productivity. This they would do anyhow if consumers' goods prices were on the decline while money wages remained stable. If, on the other hand, consumers' goods prices were stabilized, money wages would have to be increased in order to raise real wages. This would necessitate an increased supply of money to counteract commodity price

⁵ See D. H. Robertson, *Money*, chapter 7.

deflation and to raise money wages. The compromise solution would be to try to stabilize a price level which would include consumers' goods prices as well as wages. The increase in real wages, due to increased productivity, would be achieved neither entirely in the form of falling consumers' goods prices nor entirely in the form of increasing money wages but in the form of a mixture of both elements.

Since we have not yet discussed the other objectives of monetary policy and since, furthermore, it is obvious that our assumption of "increasing productivity" is rather vague, we have to refrain here from any judgement as to the wisdom of such a compromise solution.

4. NEUTRAL MONEY

Instead of trying to stabilize an index of commodity prices (or of commodity prices and wages) the monetary authority may aim at the complete neutrality of money. This, as we have seen, is not concerned with the stabilization of any particular price average.

The idea of neutral money is closely connected with the philosophy of *laissez-faire*. The quantity of money would be so controlled as to have the result that the total output, the total purchases and sales, and the prices of goods and services are exactly what they would be in a non-money-using economy in which, however, the shortcomings of barter are overcome. The idea is that the motivation of private gain and the automatic regulative forces of competition would, in such an imaginary non-monetary economy, give rise to an equilibrium adjustment of production and consumption. In the absence of the distorting (disequilibrating) stimulus of credit creation and credit destruction the economy would be perfectly stable, subject to change only as a result of such fundamental factors as alterations of consumers' preferences or improvements in the arts or acts of God.

These statements may give an elementary impression of the intention of a neutrality policy, though it is not advisable to carry the analogy of a "natural" exchange economy too far. A neutrality policy is furthermore not a laissez-faire policy in a literal sense but, as we shall see, a highly complicated administration of the monetary system.

The exponents of neutral money believe that the most dangerous disturbances in modern economy are those originating in monetary changes. Without money injecting elements of distortion or disturbance, we should have no business cycles but only comparatively smooth adjustments to changes in technology or other data.

Money, as we have seen, divides the actions of barter into purchases and sales which are individually independent of each other but equal as a total for the whole economy. Any creation of new money, however, creates new demand which is not immediately and exactly counterbalanced by an equal increase in the supply of goods and services at existing prices. If, on the other hand, money is destroyed, existing supply does not find its demand counterpart on the markets without painful downward price adjustments. Creation as well as destruction of money spoil the equivalence of total supply and demand; they are the disturbing monetary germ injected into the economic body by a monetary policy which is not neutral.

If we agree with the foregoing statements, we seem to be driven to acknowledge that a policy of neutral money has to keep the quantity of money perfectly stable.⁶ But this inference obviously has to be qualified at least in two major respects if it is to serve even as a tentative conception. The monetary authority would have to be empowered to counterbalance changes in the velocity of circulation of money resulting from such factors as hoarding and dishoarding by the public. Furthermore fundamental changes in the economic structure

⁶ See F. A. Hayek, *Prices and Production*, p. 91f.; Koopmans, *loc. cit.*, p. 259.

—population, technology, integration of industrial organization—unless compensated by changes in the quantity of money, will give rise to disturbances precisely contrary to neutral money theory.

But why is the equilibrium of the economic system disturbed whenever money is not neutral? The answer is that variations in the quantity of money cannot take place in a fashion which would guarantee a perfectly proportional change of all prices. These complicated questions will be discussed at length in chapters 20, 21 and 22, where it will be shown how inflationary and deflationary processes will alternately stimulate and depress production with all those consequences which are known as the problem of the business cycle. We do not necessarily imply, as do indeed some of the proponents of neutral money, that the cycle is a purely monetary phenomenon. But it must be admitted that monetary changes play a most important if not dominating role in business fluctuations. For the present it is sufficient to recognize that the pretensions of inflationary monetary policies as a means of solving the great economic problems of modern times are subject to grave doubts as to their wisdom. There is much to be learned from the study of a type of analysis and policy radically opposed to policies which may be generally classified as inflationary.

The most uncompromising and relentless attack upon inflationism is made by Professor Hayek. He rejects as basically inflationist even those theories "which have led to the belief that, by stabilizing the general price level, all disturbing monetary causes would be eliminated."⁷ "If we have to recognize," he says, "that, on the one hand, under a stable price level, relative prices may be changed by monetary influences, and, on the other that relative prices may remain undisturbed only when the price level changes, we have to

⁷ F. A. Hayek, *Monetary Theory and the Trade Cycle*, p. 16.

give up the generally received opinion that if the general price level remains the same, the tendencies towards economic equilibrium are not disturbed by monetary influences, and that disturbing influences from the side of money cannot make themselves felt otherwise than by causing a change of the general price level."⁸

Relative inflation and deflation are therefore to be regarded as manifestations of non-neutral money.⁹ Accordingly, inflationary situations are those in which the supply of money surpasses the condition of neutrality whilst deflation exists when the supply of money falls short of the amount corresponding to the principle of neutrality. The zero-mark of inflation and deflation is, thus, by definition, made identical with the "ideal" of a neutral money supply.

This zero-mark is also the "golden mean" of monetary policy which we might try to follow if we accepted what Mr. Robertson has named (after a famous tight-rope walker) the Blondin-motif of monetary supply.¹⁰ Recalling the inflationary and deflationary experiences of the last two decades, we may be very anxious to join the ranks of the "Blondinians," hoping that the subtle distinction of monetary theory may turn out to be a passable road instead of a tight-rope. Our optimism is, however, cooled as soon as we go back to the strange proposition that money can most safely be kept neutral when its quantity is not changed at all. It is obvious that this proposition is far too one-sided. We only have to imagine what would have happened if in the United States the total quantity of money (including bank money) had remained stable since, say, 1880. A terrific deflation would have been the consequence. The tremendous increase of the

⁸ F. A. Hayek, *Prices and Production*, p. 24f.

⁹ This and the following phrases are free translations from Koopmans. *loc. cit.*, p. 245.

¹⁰ D. H. Robertson, "A survey of modern monetary controversy," in *Essays in Monetary Theory*, London, P. S. King & Son, 1940

trade volume, T , (with the quantity and the velocity of money MV remaining stable) would have led to a price fall of incredible dimensions. Surely such monetary confinement would have made impossible the economic development of the United States in any degree even faintly approaching its actual magnitude.

How, then, can we escape the inference that the neutrality theory, though seemingly convincing in its consistent analysis of inflation and deflation, arrives at conclusions which, carried through in practice, would give rise to unbearable deflationary troubles?

The riddle can only be solved if we separate carefully at least two entirely different forms of an increase of the trade volume.

The increase in the quantity of "goods intended for sale" can be due to increased productivity of the available factors of production. Technological progress leads, through improved industrial technique and organization, to more efficient combinations of the factors of production and reduced unit costs of production. The social product increases in quantity and improves in quality even though labor and natural resources remain the same. Economic development of this kind—economic progress in its most fundamental sense—is not incompatible with a stable money supply and not necessarily dangerous in its deflationary consequences. If the unit costs of production decrease and if prices are forced down by competition to a correspondingly low level, there is no reason why production should react adversely. Even a considerable "deflation" originating from such an "intensive" increase in productivity would not seem to be dangerous.¹¹

¹¹ "When the decline of prices is due to improvements in industry and agriculture which have lowered production cost, the decline of prices is, on the whole, beneficial, for it is in this way that the fruits of industrial and agricultural progress are made available to society as a whole. . . . It is only when the attempt is made to sustain prices in the face of decreasing

But this is true only under the assumption that prices are forced down instantaneously by competition. It has been emphasized by Professor Hansen in his criticism of Professor Hayek's neutral money theory that the theory "presupposes . . . that prices are, in point of fact, reduced *at once* wherever technical improvements lower cost. Under the modern development of cartels, and other monopolistic and quasi-monopolistic organizations, this assumption does not correspond to reality. . . . It is not possible for the central bank to lower the individual prices of those commodities which, as a result of technical progress, are produced at lower unit costs. All the banking system can do is to keep money constant (or, more accurately speaking, neutral). The price *level* will, in consequence, fall, but there is no assurance that the decline will take place in the commodities produced at lower costs. If the prices of these commodities are held above cost the effect of a neutral money policy will be to force down the prices of commodities whose costs have not fallen at all."¹²

production costs that disequilibria occur, for this encourages overproduction and causes an accumulation of goods which results ultimately in a breakdown." *Gold Delegation of the League of Nations, Final Report*, Geneva, League of Nations, 1932.

¹² A. H. Hansen, *Full Recovery or Stagnation*, New York, W. W. Norton and Company, 1938, pp. 78-79. Hayek admits that "if we introduce the further realistic assumption that many long-term contracts have been made in terms of this means of exchange in expectation of more or less constant prices and furthermore that all or many of the existing prices show a certain rigidity and are especially difficult to be reduced, very essential frictions turn up against the realization of a 'neutral' money supply which are of the greatest importance for the formulation of a practical criterion for the monetary policy." (F. A. Hayek, "Über 'neutrales Geld,'" *Zeitschrift für Nationalökonomie*, Vol. 4, 1933, p. 660.) It has been argued that decreasing prices may be dangerous even if they are due to greater efficiency of production provided that the elasticity of demand for the goods in question is greater than unity. The total amount of money spent on these goods will be larger than before, leaving a smaller part of the national income for the purchase of other goods whose prices are consequently pressed down though

Entirely different from an "intensive" development of production (through increased productivity of given resources) is what we may call an "extensive" increase in production. Its meaning may best be grasped if we imagine that country *A* occupies country *B* but that the monetary authority of *A* decides that the amount of money hitherto circulating in *A* has to serve the needs of both *A* and *B* from now on, the currency of *B* being completely withdrawn. There is no doubt that this policy would lead to rapidly falling prices and the typical deflationary difficulties. The proponents of a neutral money policy would object, of course, that in our example the neutrality of money has not been maintained since money has actually been withdrawn. This is true. But it is also true that our example emphasizes what takes place every day in normal life as long as population increases. In terms of the trade volume, the German economy of to-day is much larger than the combined economies of Germany and France in 1800. And this increase in Germany's trade volume was only partly due to an intensive progress in the sense mentioned above. Part of it was certainly caused by an increase in population. Assuming that no change in unit costs of production had occurred, but that population had increased and that the other factors of production had only increased proportionately, resulting in no alteration in the pre-existing relative scarcity of the factors of production, could such an economy stand a monetary policy which would try to keep the total amount of money perfectly constant? Prices would be forced down, and, since the unit costs of production are not lowered, a process of

their costs of production have remained the same. The argument implies that neutral money policy is possibly wrong even if competitive conditions lead to a price reduction which corresponds to the increased productive efficiency. This conclusion is not correct, however. A change in the amount of money spent for a particular good merely indicates changes in consumers' preferences to which the economy has to be adjusted even at the expense of frictions.

contraction would set in until the prices of the factors of production would also have been forced down far enough to match the prices of the products at a lower level. Only on very artificial assumptions could it be assumed that this process could be smooth enough not to impair the productivity of the economy.

The result is that in cases of an extensive increase of production enough new money has to be put into circulation to maintain the old ratio between the quantity of goods intended for sale at existing prices and the total quantity of money (times velocity of circulation). The new members of the economy have to be provided with the same cash balances as the old members.¹³ This increases the purchasing power far enough to enable the new members of the economy to buy the additional goods they produce and to be paid the same incomes as the old members are accustomed to receive for the same services.

We will not enter into a discussion of the variations in the relative scarcity of the factors of production which in all probability will be connected with a quantitative change of the kind described. Those problems are in the main the subject matter of the theory of value. Two questions, however, have to be mentioned. The creation of new money, though indispensable for the smooth working of an expanding system, adds to the economic power of those creating it, leads to a changed distribution of purchasing power, and probably alters the supply of loanable funds. Thus, even though its creation may be necessary, the new money is a disturbing and distorting element—the very element which the neutral money theory seeks to exclude. But, anticipating later discussion, we should observe that the disturbing and distorting consequences of monetary expansion may well prove to be mild as compared with those caused by an insufficiency of

¹³ See Fritz Machlup, *The Stock Market Credit and Capital Formation*, London, William Hodge & Co., 1940, section 80.

circulating media. An ideal solution, therefore, is not possible in this case, and at best we must content ourselves with a compromise.

The other question concerns the effects of increased investment (that is, an increase in the instruments of production) without a change in the state of the arts. This case, often described as the lengthening of the processes of production,¹⁴ affects our problem in two different ways. Productivity is increased in that intensive manner which, because of the resulting decrease in unit-costs, does not call for the creation of new money. But the same process may also lead to an increased vertical differentiation of production organization which necessitates an increased supply of money to avoid disturbances which otherwise are bound to arise since "the effects would be the same as if, other things remaining the same, the total amount of money in circulation had been reduced by a corresponding sum used before for productive purposes."¹⁵

Though based on the philosophy of laissez-faire the aim of neutrality of money is not to be achieved by a simple laissez-faire attitude of the monetary authority. The monetary authority is supposed to compensate for changes in the velocity of circulation of money and in the degree of vertical integration of production organization; it has to distinguish between an extensive and an intensive expansion of production; it is supposed to keep the amount of money stable if the price fall is due to increased efficiency of production; it has to provide an increasing population with additional money; and, since it cannot influence individual prices, it has to keep an eye on monopolistic policies and to increase, if necessary, the quantity of money to prevent dangerous changes in the structure of relative prices.

¹⁴ See chapter 16, section 4.

¹⁵ F. A. Hayek, *Prices and Production*, p. 104.

As in the case of price stabilization we have to remember that we cannot subscribe to a policy of neutrality of money before we have studied the third objective of monetary policy which may alternatively be described as full utilization of resources, the maximization of national income or the stabilization of the economy at a prosperity level

These objectives of monetary policy indicate the attempt to remedy a situation which is not to be found in that imaginary perfect barter economy which escapes the pitfalls of monetary disequilibrium. It is the greatest shortcoming of the theory of neutral money that it cannot work under the assumption of an existing disequilibrium or an equilibrium very short of full employment. Even if these conditions should have been caused primarily by a money supply which was not neutral, we cannot overcome the existing difficulties by pointing out how we could have avoided them through a neutral money policy. In order to get out of the depths of a depression or to overcome a stagnation we may have to use policies which are not compatible with price stabilization or neutrality of money. Some of these policies will be discussed in chapter 23.

PART II

Money and Foreign Exchange

Chapter 11

INTERNATIONAL PAYMENTS

1 THE PROBLEM OF INTERNATIONAL PAYMENTS

Much of the analysis of the preceding chapters has proceeded on the assumption of an isolated country or a uniform monetary system for the whole world. This assumption is now to be removed to make way for a discussion of international exchange which, no less than trade within countries, requires the use of money in order to overcome the awkwardness of barter.

The peculiar problem of international payments arises from the fact that there is no unit of account common to all countries, and no means of payment acceptable as legal tender beyond the borders of the issuing country.¹

Strictly speaking, money can only buy within its own national boundaries—the United States dollar in the United States, the French franc in France, the pound sterling in Great Britain. International money, money which could buy throughout the world, does not exist and will not be created in the foreseeable future. How then, are international payments to be accomplished? English exporters need English money to pay English producers whilst American importers are paid in American money by their customers. Obviously the American importer will have to acquire pounds sterling for dollars, or the British exporter must accept dollars and sell them for pounds sterling. Payments from one country to

¹ Exceptions were arrangements based on international agreements such as the Latin Union or the Scandinavian Union.

another require the exchange of domestic for foreign money. The foreign money, as seen by the domestic buyer or seller, is generally referred to as foreign exchange.

Foreign exchange is bought and sold on the foreign exchange market. On the foreign exchange market of the United States we buy—with dollars, of course—foreign currencies or drafts payable in foreign currencies. The prices paid for the pound sterling, the French franc, the German reichsmark, expressed in dollars and cents, are foreign exchange rates. The price of the pound sterling will rise when the demand for pounds sterling on the foreign exchange market of the United States increases or when the supply of pounds sterling decreases. We can call this a "rise" in the foreign exchange rate; British money becomes more expensive for American buyers, and American currency becomes cheaper for British buyers.

Assuming sufficient freedom of international payments (i.e., excluding foreign exchange control), the dollar price for pounds sterling in New York and the pound sterling price for dollars in London must be closely related. The slightest difference of the two ratios would lead to a process of arbitrage. If the dollar-pound ratio were more favorable to the pound in New York than in London, pounds sterling would be acquired (for dollars) in London and sold (for dollars) in New York until the exchange rates would be consistent in the two markets. The same principle of arbitrage would, of course, lead to consistency between the exchange ratios of all currencies, since the dollar-franc rate could not be out of line with the pound-dollar and the pound-franc rate respectively without setting the arbitrage process in operation.

2. THE CLEARING OF INTERNATIONAL PAYMENTS

If gold is used as a common denominator for the different national currency units, it facilitates the comparison of rela-

tive exchange values and gives more stability to the pattern of exchange rates. In respect to different currencies gold performs then a function similar to the one that money performs when it enables us to express exchange values of commodities in terms of prices. Gold may also serve as a means of international exchange. Gold is willingly accepted all over the world and it is, therefore, generally possible to make international payments through gold shipments. If the gold parities of the different currency units are fixed and if the residents of the different countries are entirely free to buy and sell gold and to transfer it to other countries, the monetary systems of the world are closely knit together. This is the essential framework of the international gold standard of the old, pre-1914 type, which will be discussed in chapter 12.

The use of gold as a common anchorage for national currency units does not, however, imply that international payments are generally accomplished through gold shipments. Even when countries are on the gold standard, cumbrous payments in gold are avoided through the operation of the foreign exchange market. On the foreign exchange market the clearance of a country's debits and credits is accomplished on the same principles as a bank clearinghouse effects the clearance of money claims of different banks on each other.

A greatly simplified example will serve as an illustration. Exporter Brown in New York has sold 500 pounds sterling worth of chemicals to importer Black in London and, at the same time, exporter White in London has sold 500 pounds sterling worth of woolen cloth to importer Green in New York. Payments for these purchases can easily be made without inconvenient and expensive shipments of gold. Brown will draw a bill of exchange on Black, ordering him to pay 500 pounds sterling. Brown sells the bill to Green for dollars, Green uses the bill to pay White, and White in turn collects pounds sterling from Black. Two international payments have thus been accomplished with the aid of a commercial paper and

one domestic payment in each of the two countries. (This system, incidentally, does not require gold standard conditions in the trading countries. It would work in essentially the same way between countries on the paper standard.)

This simplified description of the fundamental international payments procedure can, except for its complex technical paraphernalia, be completed with a few additional remarks. The four parties in the above example are, in reality, a multitude of exporters and importers who are brought into convenient financial relationships by bankers and exchange dealers. Brown, for example, would sell his pound sterling draft on Black to a New York bank; the bank would send the draft to its London correspondent bank; the London bank would collect from Black and would credit pounds sterling to the account of the New York bank. Through many similar transactions the New York bank would build up foreign balances against which it could draw at any time. Importer Green in New York, for instance, could buy from the New York bank a draft on the London bank to make payments to exporter White in London. Since the foreign balances are readily available, the payments could, if necessary, be made by cable or telegraphic transfer.

If the draft is not payable on sight but, say, in sixty days (a so-called time draft), the transaction is slightly more complicated since the international payment procedure, which is our main concern, is then connected with a credit operation. The New York bank, when buying a time draft from Brown will deduct from the purchase price the interest (discount) for the interval between the time of the purchase and the time when the London correspondent bank can collect from Black.

The identity of the value of the traded goods in the above example is a simplification which will appear less arbitrary when we consider that each country's total in-and-out payments will have to balance and that it is the very function of fluctuations in the foreign exchange rates to help bring

about this equilibrium. Of course, the payments between any pair of countries will not necessarily balance unless they are artificially equalized through bilateral payment agreements. "Country *A* may habitually sell to country *B* more than she buys from *B* and may habitually buy from country *C* more than she sells to *C*. Thus the United States on the average of the three years 1936-8 sold to Britain goods to the value of \$499 millions a year and bought from Britain only to the extent of \$174 millions a year. On the other hand, in the same three years, the United States bought from British Malaya goods, chiefly rubber and tin, to the value of \$174 millions a year and sold to British Malaya less than \$8 millions worth a year. British Malaya transferred her surplus dollars, or some of them, to Britain to pay for imports from Britain and by that means Britain was able to pay for some of her imports from the United States."² This example illustrates a typical case of triangular or multilateral trade in which money received by selling goods to one country can be spent on imports from any other country.

Will commodity exports and imports balance between one country and "the rest of the world"? Not necessarily, since international payments do not originate only from the purchase and sale of commodities. They may be due to services rendered (e.g., shipping services), expenditures of tourists in foreign countries, personal remittances, capital movements (export of domestic and import of foreign securities), interest and dividend remittances resulting from foreign loans and investments, settlement of loans and other debts (e.g., reparations), and gold shipments.

All these in-and-out payments between one country and the rest of the world constitute a country's balance of payments and determine the demand and supply conditions on

² See William H. Beveridge, *Full Employment in a Free Society*, New York: W. W. Norton, 1945, p. 216.

its foreign exchange market.³ Merchandise and securities sold or services rendered to foreigners as well as interest or amortization payments received from foreigners lead to a supply of foreign exchange on the foreign exchange market just as payments in the opposite direction (payments due to foreigners) lead to a demand for foreign exchange.

To say that the balance of payments always balances merely states the truism that the amount of foreign exchange sold must be equal to the amount bought, or that, owing to the double-entry bookkeeping procedure, the debit items in a country's international accounts must equal the credit items. But the term balance of payments is also used "in the sense

³ The major items from the United States balances of payments (in millions of dollars) for 1929, 1932, and 1939 reveal the following interesting picture

	1929			1932			1939		
	Re- ceipts	Pay- ments	Bal- ance	Re- ceipts	Pay- ments	Bal- ance	Re- ceipts	Pay- ments	Bal- ance
I Current transactions									
A Merchandise, trade	5,241	4,399	+842	1,611	1,323	+288	3,157	2,318	+ 839
B Other current transactions									
Shipping and freight	390	509	-119	171	255	- 84	303	367	- 64
Travel expenditures	139	483	-334	65	259	-194	135	290	- 155
Personal remittances	51	339	-288	17	199	-182	36	144	- 108
Interest and dividends	982	330	+652	460	135	+325	541	230	+ 311
Government items	261	152	-109	124	96	+ 28	44	99	- 55
Silver	83	64	+ 19	14	20	- 6	14	91	- 77
Total of all current transactions	7,147	6,361	+786	2,481	2,322	+159	4,314	3,582	+ 732
II Gold movements, net			-120			- 11			-3,018
III Capital transactions									
Balance on long term capital movements			-278			+255			+ 27
Balance on short term capital movements			- 4			-446			+1,470
Balance on all capital movements			-282			-221			+1,497

Condensed from *The United States in the World Economy*, United States Department of Commerce Washington, D C, U S Government Printing Office, 1943, Table I

of the whole demand-and-supply situation"⁴ A study of the forces determining the demand and supply conditions on the foreign exchange market is the core of the theory of international payments which centers on the determination of the exchange rates

3 DEMAND AND SUPPLY ON THE FOREIGN EXCHANGE MARKET⁵

The foreign exchange market, like any other market, is a place of price determination It has, however, the peculiar feature that the "merchandise" offered for sale is foreign *money* and that we thus find money both on the demand and the supply side of the foreign exchange market

In treating the demand for any good it is generally assumed that as the price goes down the amount bought increases and that with an increase in price the amount bought will decrease In technical language the demand curve is assumed to slope from the upper left to the lower right (Fig 2) The foreign exchange market is no exception to this rule It is quite natural that, in a normal case, the amount of foreign exchange which buyers stand ready to buy should be the greater the lower the price of foreign exchange in terms of domestic money Foreign exchange is the entrance ticket to foreign markets Assuming that the prices of foreign goods in terms of foreign money are given, a reduction in the price of foreign money makes all foreign products cheaper and therefore leads to increased imports from abroad Since these increased imports have to be paid for, importers will desire to buy larger amounts of foreign money A higher price of foreign money, on the other hand, makes all foreign products

⁴ See Gottfried von Haberler, *The Theory of International Trade*, New York, Macmillan, 1937, p 19

⁵ In connection with the following, consult Professor Fritz Machlup's excellent article, "The theory of foreign exchanges," *Economica*, November 1939, February 1940

more expensive, leads to a falling-off of imports and, consequently, of the amount of foreign exchange demanded by importers

The statement that more is bought at a lower price, while true, is, however, of little significance unless it is qualified by some indication as to *how much more* and, in the case of a higher price, *how much less* will be bought

We call the demand *relatively elastic* when, as the price goes down, the total amount spent increases. Thus, if the dollar

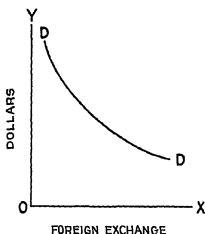


FIG 2

price for a pound sterling changes from 5 to 4 and the total amount of dollars spent increases from 100 to 120, the demand is said to be *relatively elastic*. The number of pounds bought in this case must have increased from 20 to 30 ($5 \times 20 = 100$, $4 \times 30 = 120$). Had the amount bought increased from 20 to 23 in response to a fall in the dollar price for the pound sterling from 5 to 4, the total amount of dollars spent would be 23×4 , or 92, instead of 20×5 , or 100, and the demand would be considered *relatively inelastic* (Figs 3 and 4)

It is important to note that the reactions of imports and exports upon changes in the rate of exchange take time and

that our analysis of the demand for foreign exchange must remain conscious of the time period which may elapse before the assumed changes in the amounts bought or the sums of money spent can be expected to occur

Extreme cases are possible in which the amount of foreign

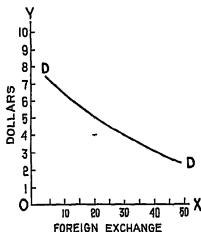


FIG 3

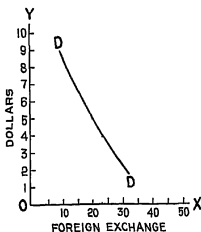


FIG 4

exchange bought remains the same irrespective of changes in the exchange rate. Consider a country which has to make interest or reparation payments to another country *in the other country's currency* and assume that the amounts in question are fixed. Now the required amount of foreign exchange does not vary with the exchange rate but the amount of domestic money necessary to buy the foreign exchange increases and

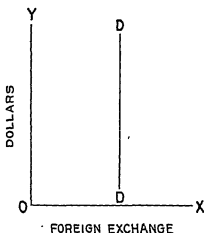


FIG. 5

decreases in proportion to an increase or decrease in the exchange rate. In technical language this is a *perfectly inelastic* demand for foreign exchange and the demand curve is a vertical straight line parallel to the OY or price axis (Fig. 5). Of course, only part of the demand for foreign exchange will be perfectly inelastic but this part may be quite important:⁶

⁶The period from 1929 to 1932 offers an excellent example. Owing to the decrease in American imports of goods and in long-term investments abroad the dollars supplied by the United States to foreign countries fell from 7.4 billion dollars in 1929 to 2.4 billion dollars in 1932, but in both 1929 and 1932 the dollars required to meet fixed debt-service payments to the United States (assuming no defaults or adjustments) were 900 million dollars. See *The United States in the World Economy*, p. 6.

The case of a *perfectly elastic* demand for foreign exchange would require that the monetary authority of the country stands ready to buy at a certain price *all* foreign exchange that is offered for sale. The demand curve would be a horizontal straight line parallel to the OX or quantity axis (Fig. 6). When such a standing offer exists, the price of foreign exchange cannot fall below the official buying rate since no

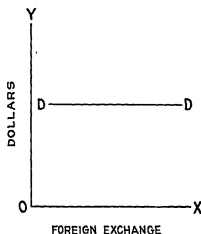


FIG. 6

one would sell for less than the price at which the government buys "any" amount. Of course, only the monetary authority can be expected to undertake to buy unlimited amounts of foreign exchange at a set price since only the monetary authority can (theoretically) create unlimited amounts of domestic money.

Take finally the case where country *A* has to make yearly payments to country *B* fixed in *A*'s own currency—e.g., the repayment of a loan contracted in units of *A*-money. If the price of *B*-money fluctuates in terms of *A*-money, that is, if the exchange rate varies, a fixed amount of *A*-money will buy varying amounts of *B*-money. A fall in the price of *B*-money

by 50 per cent would, for instance, increase the amount of *B*-money bought with the fixed sum of *A*-money by 100 per cent and, conversely, a doubling of its price would cut in half the obtainable amount of *B*-money for a fixed sum of *A*-money. This is the peculiar case of a demand situation in which the amount spent remains the same irrespective of price. In technical language: the demand has an *elasticity of unity* and the demand curve is a rectangular hyperbola (Fig. 7).

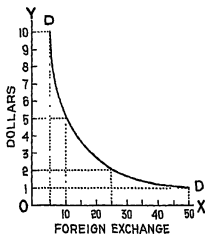


FIG. 7

Summarizing, we can now distinguish the following elasticities of demand on the foreign exchange market:

(1) *Perfectly elastic demand*: The monetary authority buys all the foreign exchange offered at an official buying price (Fig. 6).

(2) *Relatively elastic demand*: As the price of foreign exchange goes down, the amount of foreign exchange demanded rises more than proportionately, and therefore the total amount of domestic money spent on foreign exchange increases; as the price of foreign exchange goes up, the amount of foreign exchange demanded falls more than proportionately, and there-

fore the total amount of domestic money spent on foreign exchange decreases (Fig. 3).

(3) *Demand of unity elasticity*: The amount of foreign exchange bought reacts upon changes in the exchange rate in such a way that the total amount of domestic money spent on foreign exchange remains exactly the same; that is to say, a certain percentage change in price results in an opposite but equal percentage change in the quantity demanded (Fig. 7).

(4) *Relatively inelastic demand*: As the price of foreign exchange goes down, the amount of foreign exchange demanded rises less than proportionately, and therefore the amount of domestic money spent on foreign exchange decreases; as the price of foreign exchange goes up, the amount of foreign exchange demanded decreases less than proportionately, and therefore the total amount of domestic money spent on foreign exchange increases (Fig. 4).

(5) *Perfectly inelastic demand*: The amount of foreign exchange to be bought is fixed. This amount has to be bought irrespective of the price of foreign exchange in terms of domestic money (Fig. 5).

The careful reader will have noticed that we used the expression "increase or decrease in the amount bought or demanded" rather than "increase or decrease of demand." The term demand is customarily employed to denote an attitude of buyers, their willingness to buy different amounts at varying prices (except in our extreme cases (1) and (5) above). A change in demand, i.e., an "increase" or "decrease" of demand, is a change of the buyers' whole attitude. At all possible prices they will now buy more (increased demand) or less (decreased demand) than before. These changes are not reactions to the varying price of the foreign currency. They are caused by changes in tastes, in production costs and commodity prices, in tariffs and transportation charges, in interest rates, in employment and national income. Also, the changing price of other currencies (*C*, *D*, *E*) may change country *A*'s

demand for currency *B*. When speaking of an increase or decrease in amounts bought, we think of a movement along a given demand curve; when speaking of an increased or a decreased demand, we assume that the whole demand curve is shifted to the right (increased demand) or to the left (decreased demand). (Fig. 8.)

The supply of foreign exchange on the foreign exchange market depends on the country's exports of goods, services

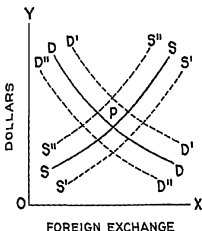


FIG. 8

and securities. These exports are other countries' imports and are, therefore, influenced by numerous factors both in the exporting and the importing country. The quantity of foreign exchange supplied will increase with the price paid for foreign exchange (the supply curve of foreign exchange slopes, as a rule, upwards to the right). The exporter sells his receipts of foreign exchange for domestic money, and his profits are increased if he can sell them at a higher price—i.e., for more domestic money. Also, as the price for foreign currency rises in country *A*, *A*-currency becomes cheaper for foreign buyers. And since *A*-currency is the entrance ticket to *A*'s market, all prices in *A* become at once more attractive to foreigners.

As in the case of demand we can distinguish different elasticities of supply:

(1) *Perfectly elastic supply*: The monetary authority is willing to sell (out of reserves) at a fixed price any desired amount of foreign exchange or gold, thus preventing the exchange rate from rising. Since the reserves are limited, the monetary authority may not be able to maintain this perfectly elastic supply indefinitely (Fig. 9).

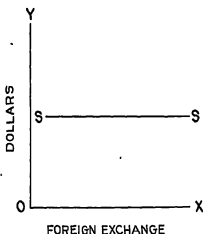


FIG. 9

(2) *Relatively elastic supply*: An increase in the price of foreign exchange will cause a more than proportionate increase in the amount supplied; a decrease in price will cause a more than proportionate decrease in the quantity supplied. For instance, if the price is doubled the quantity supplied will more than double (Fig. 10).

(3) *Supply of unity elasticity*: An increase or decrease in price causes a proportionate increase or decrease in the quantity supplied (Fig. 11).

(4) *Relatively inelastic supply*: An increase in the price of foreign exchange will cause a less than proportionate increase

in the amount supplied, a decrease in price will cause a less than proportionate decrease in the quantity supplied (Fig 12)

(5) *Perfectly inelastic supply* The amount supplied remains the same irrespective of the price of foreign exchange, e.g., a

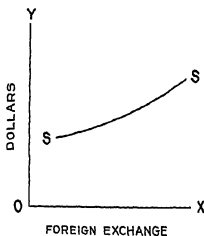


FIG 10

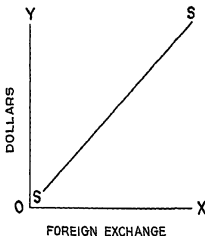


FIG 11

payment has to be made in fixed yearly amounts by a foreign country in the foreign country's money (Fig. 13).

In the absence of foreign exchange control, the exchange rate is determined by demand and supply, as any other market

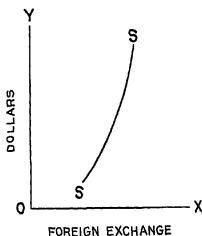


FIG. 12

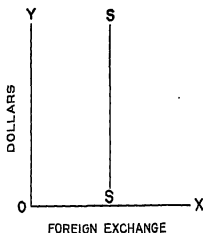


FIG. 13

price in a perfectly competitive situation. At the rate thus determined international payments equilibrium must exist, i.e., the amounts demanded and supplied under free market conditions must be equal. (The rate corresponds, in other words, to the intersection of the demand and supply curves). When demand for foreign exchange increases (a shift of the demand curve to the right) the price of foreign exchange

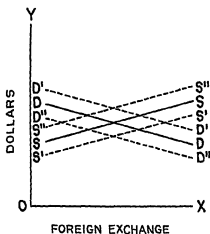


FIG. 14

will increase. Conversely, a decrease in demand (a shift of the demand curve to the left) will lower the price of foreign exchange. Similarly, an increase in supply (a shift of the supply curve to the right) will lower the price of foreign exchange while a decrease in supply (a shift of the supply curve to the left) will increase the price of foreign exchange (Fig. 8).

The theory of the foreign exchange market consists mainly in an analysis of the factors which determine demand and supply. Theoretically, these factors can be divided into those which determine the elasticities of existing demand and supply, and those which change the demand and supply situation (i.e.,

shift the positions of the demand and supply curves). The elasticity of demand (supply) will determine whether shifts in the supply (demand) curve will have a greater influence on the amounts bought and sold or on the price at which the sales take place. The greater the elasticity of demand or supply the more stable the exchange rate will remain and the more will changes in supply or demand manifest themselves in

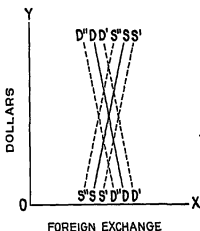


FIG. 15

changes of quantities bought and sold. Conversely, the more inelastic the supply and demand the greater will be the changes in the exchange rate as the result of a shift of the curves and the smaller will be the changes in quantities bought and sold. (Figs. 14 and 15.)

Aside from exchange control we can distinguish two basic conditions on the foreign exchange markets:

(1) The system of freely fluctuating exchange rates. In this system, changes in demand or supply on the foreign exchange market are permitted to change the exchange rate until a new equilibrium position has been found. The adjustment burden

rests on the exchange rate and no attempt is made by the monetary authority of the country to influence demand or supply conditions with the aim of stabilizing the rate of exchange.

(2) A system of relatively stable exchange rates. In this system everybody is free to buy and to sell foreign exchange, but steps are taken by the monetary authority to guarantee

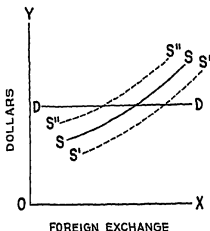


FIG. 16

such high elasticities of demand and supply on the foreign exchange markets that the exchange rate can fluctuate only within a narrow margin.

Since exchange control is, by definition, excluded, and demand and supply on the part of the public are free and unrestricted, the stability of the exchange rate must be achieved by counterbalancing actions of the monetary authority. A free system in which, nevertheless, the exchange rate is to be temporarily or even permanently stabilized must rest on a perfectly elastic supply by the government of foreign exchange and of domestic money so that changes in the demand for domestic money by "exporters" (changes in the supply of foreign exchange) or changes in the demand for foreign ex-

change by "importers" are automatically neutralized in their effect upon the exchange rate. (Figs. 16 and 17.)

Obviously such a counterbalancing policy cannot be continued if the monetary authority should run out of foreign exchange (or gold). In order to keep the supply of foreign exchange perfectly elastic the monetary authority would have to see to it that its reserves of foreign exchange are filled up

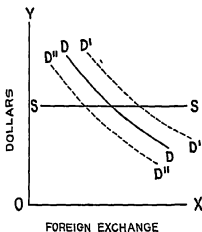


FIG. 17

again by an increase in the supply of foreign exchange or a decrease in the demand for foreign exchange. This it can do through borrowing from abroad, through a reduction of domestic prices, or through higher tariffs.

The success of these government policies will depend on the totality of factors which determine a country's balance of payments and which, under a system of free exchanges, would normally lead to fluctuations in the rates of exchange.

International monetary policies are mainly distinguished by the degree of exchange rate stability at which they aim and by the methods with which they influence the factors that determine the demand and supply conditions on the foreign exchange market.

4. THE FACTORS DETERMINING DEMAND AND SUPPLY ON THE FOREIGN EXCHANGE MARKET

As we have seen from the study of the international balance of payments, the three major categories of transactions between a nation and the rest of the world are:

- I. Exports and imports of commodities;
- II. Invisible exports and imports (sales and purchases of services to and from residents of foreign countries);
- III. Imports and exports of capital (sales and purchases of promises to pay to and from residents of foreign countries).

The first category of transactions is the foreign trade balance in the narrower sense of the term. The first and the second are sometimes regarded as the foreign trade balance in the wider sense of the word. If, in technical language, they are called transactions on current account, they include interest payments or, more generally, the servicing of foreign loans.

The capital movements are usually divided into short-term and long-term, the criterion for this division being merely the form of the certification of the indebtedness but not necessarily the actual duration of the loan.

I. Exports and Imports of Commodities

(1) *Price levels.* The general level of domestic prices may rise or fall (price inflation or price deflation). Unless a general price movement is accompanied by exactly proportional price movements in other countries it will, in the case of inflation, stimulate imports and lower exports, and, in the case of deflation, lead to the opposite effects. The corresponding change in the demand and supply of foreign exchange (e.g., increased demand and decreased supply in the case of inflation) will, *ceteris paribus*, change the price of foreign exchange to a degree that corresponds to the old exchange rate multiplied by the

ratio of the degree of inflation in the respective countries.⁷ If the price level of country *A* was doubled by inflation while the price level of country *B* remained the same, and if five units of *A*-money used to buy one unit of *B*-money, the rate of exchange after the inflation in *A* would be expected to be, *ceteris paribus*, around ten to one. This is the so-called purchasing power parity theory which teaches that, in general, changes in the foreign exchange rate are determined by, and are in proportion to, the changes in the relative domestic values (purchasing powers) of the currencies in question.

If the purchasing power parity theory contained all we need to know about the factors which influence the exchange rate, our analysis of the factors determining the demand for and the supply of foreign exchange would be complete. The following discussion attempts to add a brief investigation of these other determining factors which are not contained in the naive versions of the purchasing power parity theory.

(2) *Relative commodity prices.* International trade rests on comparative cost advantages in particular lines of production in different countries. If the price relationships between different commodities were the same in all countries, there would be no international trade. But the countries of the world are very differently endowed with facilities for the production of various articles. "It is the proportion of the [productive] factors in a region which determines its fitness for specific industries."⁸ Once the domestic prices for the productive factors are determined, we know the relative costs of the articles produced. And when, in a similar manner, costs and prices in other countries are determined, we know, on the basis of a *given* exchange rate, which commodities should be imported and which exported.

⁷ See Gustav Cassel, *Money and Foreign Exchange After 1914*, New York, Macmillan, 1923, p. 140.

⁸ See Bertil Ohlin, *Interregional and International Trade*, Cambridge, Harvard University Press, 1933, p. 11.

Excluding for the present all impediments to foreign trade other than transport costs, we can say that any foreign product which, after translation into domestic prices on the basis of a given exchange rate, is cheaper than the corresponding domestic product, will be imported if the difference in price is greater than the cost of transport. (If we want to include tariffs we can substitute "cost of transfer" for "cost of transport.") Under similar but opposite circumstances domestic products would be exported. Every commodity has, therefore, an export and an import point, the distance between the two "commodity points" being determined by the cost of transport.⁹ Within these commodity points prices are free to fluctuate without leading to variations in international trade and without affecting the exchange rates.

If the price of a commodity should rise beyond the import point, it would automatically attract foreign competition, lead to imports and to an increased demand for foreign exchange. A fall below the export point, on the other hand, would lead to additional exports and an additional supply of foreign exchange.

If transport is impossible or if transport costs are exceedingly high, the good will not be internationally traded. Whether a commodity enters international trade depends, therefore, on the transport (or transfer) cost in comparison with the difference in its marginal cost of production in the respective countries (provided that the markets are perfectly competitive in each country). If the transport cost is small enough, it becomes profitable to buy the article in the cheap country and to sell it in the dear country until prices are equalized after allowance has been made for transport (or transfer) costs and after prices have been converted to a common basis by means of the actual exchange rate. Changes in relative prices of individual commodities—even with un-

⁹ Haberler, *The Theory of International Trade*, p. 34.

changed price levels—will bring about changes in exports and imports and, consequently, changes in the foreign exchange rate sufficient to equalize exports and imports if there are no other international payments. This is a criticism of the naive purchasing power parity theory because changes in relative prices without changes in price levels will influence exchange rates.

(3) *Elasticity of demand and supply in foreign trade.* The effect of changes in relative prices upon international trade and upon the exchange rate depends on the elasticities of demand and supply in the commodity markets of the trading countries. The greater the elasticity of foreign demand for the “domestic” products of country *A* the more will the amount of foreign money spent increase as the commodity prices in *A* decrease, and the greater will be, *ceteris paribus*, the elasticity of supply of foreign exchange on the foreign exchange market of country *A*.

The elasticity of foreign demand depends on factors such as the character of the commodity as a luxury or a necessity, the existence of substitutes available in the foreign market, the elasticity of supply of these substitutes, etc. The consumption of raw materials, for instance, which are used for further manufacture “is not directly responsive to any marked degree to price changes.”¹⁰

The elasticity of supply in foreign trade depends on such factors as the competitive or monopolistic character of the industry in question, the ease or reluctance with which domestic demand releases goods for export purposes, and the existence or absence of excess capacity.

The greater the elasticity of foreign demand and the greater the elasticity of domestic supply of export articles, the more elastic will be the supply of foreign exchange in the exporting country and the demand for foreign exchange in the importing country. Conversely, an inelastic demand for imports and

¹⁰ *The United States in the World Economy*, p. 41.

an inelastic supply of export products are factors making for an inelastic demand for foreign exchange in the importing country and an inelastic supply of foreign exchange in the exporting country.

A glance at the position of countries which produce primary products may illustrate the practical importance of the above analysis. Suppose that the production of primary products such as rubber, cotton, wheat, and lead is highly competitive and that it cannot easily be reduced when prices fall. The supply of these products is, consequently, rather inelastic. But the demand, domestic as well as foreign, also tends to be inelastic. The demand for raw materials as well as for food-stuffs is relatively unresponsive to price changes. The combination of inelastic supply and inelastic demand can lead to extremely severe fluctuations in the total amount of domestic and foreign money earned by the sellers of primary products. If the exchange rate is free to fluctuate, a contraction of export values will cause the price of foreign exchange to rise conspicuously.

(4) *Size of available markets.* The smaller the share in the total foreign trade taken by the exports of one country the more elastic is the foreign demand for that country's exports. If, on the other hand, a country would have for its additional exports only a single outlet, i.e., if it could sell in the markets of only *one* other country, the foreign demand for its products could prove to be relatively inelastic.

This consideration leads to the important result that, *ceteris paribus*, a system of multilateral trade and payments will lead to relatively more stable exchange rates than a system of bilateral arrangements. In a truly multilateral system a country can increase the supply of any particular currency on its foreign exchange market by selling additional exports *anywhere in the world*. Where bilateral trade arrangements predominate, however, an increased supply of *A*-currency will depend on additional sales in *A*'s markets. This should be

clearly understood by those who are in favor of so-called "tied" loans, that is, loans which have to be spent in the lending country. Insisting on a bilateral relationship when the loan is made, the lending country may find, later on, that it can obtain repayment only by increasing its imports from the country to which it extended credit, while in a multilateral system it would probably obtain repayment by increasing its imports from any other country. The advantage of a multilateral system in terms of greater elasticity of demand and supply in foreign trade and in terms, consequently, of more stable exchange rates, should be obvious.

(5) *Employment and national income.* The volume of international trade ordinarily fluctuates with general economic activity. During a period of prosperity a country will import more raw materials and, because of higher individual incomes, there will also be a greater demand for imported consumers' goods. On the other hand, a depression in one country will tend to spread to other countries because of the consequent decrease in imports. If cyclical fluctuations are heavy and the country in question is an important market for other nations, the effects of the instability of the country's domestic economy may be overwhelming and may far outweigh all other factors influencing the exchange rates.

The amount of dollars "supplied" by the United States in the foreign exchange markets of other countries through merchandise trade (commodity imports) fell from \$4,399 million in 1929 to \$1,323 in 1932. This sharp decrease was the combined effect of a decrease of both quantities and prices of imported products. From these figures it has been correctly concluded that the greatest service which the United States could render to the expansion and balanced growth of world trade would be the maintenance of a high level of domestic employment and income. And what is true for the United States is, *mutatis mutandis*, true for the rest of the world—full employment conditions (without inflationary

price movements) would lead to more orderly foreign exchange markets and to more stable exchange rates.

(6) *Protectionist policies.* Established tariffs have the same effect upon a country's imports and exports as transport costs; they increase the difference between the foreign and the domestic price of the protected commodity. But the domestic price remains connected with the foreign price so that changes in costs, prices or exchange rates will influence exports and imports. However, the difference between the commodity export and import points will be increased when a tariff is imposed or raised. Tariffs may be prohibitive, of course; when the artificially created price difference outweighs the difference in the domestic and foreign marginal costs, foreign products will not be imported.

An increase in tariffs is often used as an instrument to achieve balance of payments equilibrium by cutting down imports to the "given" size of exports. If stable exchange rates are the aim of such a policy, the result is highly doubtful in the long run. Such tariff increases will seriously reduce the size of the world market and the volume of world trade, and will generally lead to an increasing inelasticity in foreign demand. And, as we have seen, the greater the inelasticity of foreign demand, the less stable will be exchange rates and foreign trade equilibrium.

Under a system of import quotas the quantity of imports is rigidly limited if the quotas are small enough to be effective, and the relationship between domestic and foreign prices is interrupted. A quota policy introduces, therefore, "an element of rigidity in the balance of payments."¹¹ In an extreme case (when all other countries have introduced a comprehensive quota system and when all quotas have been exhausted) the foreign demand for a country's products would become perfectly inelastic and it would, then, be impossible to increase

¹¹ League of Nations, *Quantitative Trade Controls*, Geneva, 1943, p. 21.

the supply of foreign exchange through increasing the physical volume of exports

Obviously, the elimination of import quotas and the reduction and stabilization of existing tariffs would contribute towards a better balanced international payment system and towards more stable exchange rates

II Invisible Exports and Imports

Payments for other current transactions include payments for services, for travel expenditures, for personal remittances, and for interest and dividends "Payments of moderate amounts for amortization of loans or for depreciation of direct investments" may also be counted in this category ¹²

These other current transactions are often referred to as "invisible" in contrast to exports and imports of commodities which are tangible and visible This distinction, however, is purely formal and does not even imply that the visible transactions can always be estimated more accurately than the invisible ones

Invisible transactions may influence the balance of payments of a country no less than commodity movements If we exclude for the present any net capital movements, a surplus or deficit in the commodity trade balance is explained by an offsetting deficit or surplus in the balance of invisible services

The invisible transactions are determined by factors similar to those which influence the export and import of commodities

(1) *Services* will be rendered by the country which has a relative cost advantage in their performance That the United States "imported" a very high percentage of shipping services must be attributed mainly to the fact that the nature of these services excludes those particular advantages of mass produc

¹² *Articles of Agreement International Monetary Fund*, Art XIX (1) See footnote 1 to chapter 15

tion which, in many other fields, compensated for (and made possible) a relatively high wage level.

The volume of shipping and some other services bought and sold will move closely parallel to fluctuations in merchandise import and export, and will, therefore, indirectly be determined by the same factors which influence the volume of international trade.

(2) *Travel expenditures* are particularly interesting as a luxury "commodity" among the invisible transactions.¹³ Expenditures for luxuries are liable to fluctuate with the national income and, therefore, with the general business conditions of a country. Other factors (political situation, exchange control measures, competitive exchange depreciation, etc.) will have some influence, but the national income of the "importing" country, i.e., the country whose nationals do the traveling, will be the decisive factor in normal times.

(3) *Personal remittances* depend on such factors as the need of the recipients, personal relationships, and the financial circumstances of the remitters.¹⁴ If need were the decisive factor, the demand for foreign exchange for this purpose would tend to be rather inelastic; if the financial circumstances of the remitters alone were decisive, the demand for foreign exchange would be fixed in terms of the remitters' currency (i.e., of an elasticity of unity) and the whole demand curve would shift to the right or left as the result of an increasing or decreasing national income.¹⁵

(4) *Interest payments* owed to foreign countries may be assumed to constitute a perfectly inelastic demand for foreign exchange in the foreign exchange market of the paying country (when the payments are fixed in terms of the creditor's money)

¹³ *The United States in the World Economy*, pp. 74-77.

¹⁴ *Ibid.*, p. 78.

¹⁵ See Fritz Machlup, *loc. cit.*, p. 392.

or a perfectly inelastic supply of foreign exchange in the foreign exchange market of the creditor (when payments are fixed in terms of the debtor's money). The liability to pay interest will, of course, become effective demand for foreign exchange only if the debtors are able and willing to pay, which may to some extent depend on general business conditions. *Dividend payments*, on the other hand, are never fixed in amount and depend entirely on the general business condition in the paying country (or even in the receiving country when the foreign investment was used, let us say, to finance raw materials for the investor).

Payments of moderate amounts for amortization of loans will affect the demand for and the supply of foreign exchange very much in the same way as interest payments. But when large settlements of old debts have to be accomplished within a relatively short period of time, the payments cannot any longer be considered as "current transactions" and special problems arise in connection with such debt payments.

III. Imports and Exports of Capital

Even if all current transactions were to be included in a wider concept of the balance of trade, the trade balance would not necessarily be in equilibrium between any one country and the rest of the world. A demand for or a supply of foreign exchange may arise from capital movements, from settlements of old debts and from such unilateral payments as reparations.

The demand for and the supply of foreign exchange connected with capital transactions cannot be expected to balance. A country will hardly be simultaneously a lender and a borrower of equal amounts, or a payer and receiver of reparations. Only if a country should pay reparations out of the proceeds of foreign loans (as was the case with Germany from 1924 to 1929)—thus paying a political debt by transforming

it into a commercial debt and shifting the payment problem into the future without solving it—would there be a balance on capital account in the period in question.

Payments arising out of capital movements are unilateral in the sense that, for any short period of time, there will be no tendency towards a balancing of the demand for and the supply of foreign exchange connected with them. Payments on current account have the inherent quality that, owing to the mechanisms described below, demand for and supply of foreign exchange would tend to be equalized over a relatively short period, say a year, if other transactions were absent. But if unilateral payments are to be made, this self-contained tendency towards equilibrium on current account is deferred or eliminated. The increased demand for foreign exchange, owing, say, to the import of foreign securities, must be satisfied by a supply of foreign exchange which comes from current transactions (export of goods and services). In other words, the transfer of capital from one country to another can only be achieved by an excess of the lending country's exports (including "invisible" items) over its imports, and *vice versa* for the borrowing country. We may even go one step further and say that, in a sense, a foreign loan consists of some imports by the borrowing country for which it does not have to give exports for the time being.

But how is the relationship between such unilateral payments as are represented by capital movements and the appropriate balancing change in the transactions on current account brought about?

In a system of flexible exchange rates the balance is achieved through adjustment of the exchange rates. The demand for foreign exchange which is required for unilateral payments (purchase of foreign securities, reparations) is added to the demand for foreign exchange which arises from current transactions (import of commodities and services). If the total demand for foreign exchange thus increases, the price of foreign

currency will rise. This price rise will decrease the amount of foreign exchange bought for current transactions as well as increase the amount supplied since, as we have already seen, a higher price of foreign exchange will cut down the purchase of foreign goods and services and will step up the sale abroad of domestic goods and services. The difference between the amount of foreign exchange bought for current transactions and supplied by current transactions will equal, at the new

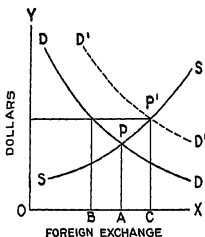


FIG. 18

exchange rate, the amount desired for purposes of capital transfer.

Fig. 18 shows a demand curve DD and a supply curve SS for foreign exchange which intersect at point P . The demand curve DD represents the demand for foreign exchange arising from current transactions. Then the demand curve is shifted to the position $D'D'$ owing to the addition to DD of a new demand for foreign exchange arising from the purchase of foreign securities or a loan given to another country. The new (total) demand curve $D'D'$ intersects the old supply curve SS at point P' , i.e., the price of foreign exchange will rise. At

this higher price the amount of foreign exchange bought for current transactions is reduced from OA to OB while the amount supplied rises from OA to OC. An amount of foreign exchange equal to the total difference BC is now available for the "transfer" of capital.

The elasticity of the demand for foreign exchange arising from unilateral payments will be unity if the amount in question is fixed in terms of domestic money. If the amount is fixed in terms of foreign money, the elasticity is zero; i.e., the demand for foreign exchange for this purpose is theoretically perfectly inelastic.

If the amount of unilateral payments is not yet fixed, the shape and the position of the demand curve will depend on many circumstances both at home and abroad, such as the comparative rates of interest and, in case of direct investments, the comparative rates of expected profit; the domestic demand for capital in the lending country, i.e., its investment opportunities; the supply of loanable funds out of savings or credit creation; and the many factors determining supply and demand on the domestic credit market: general business conditions, the national income, the liquidity of the banking system, etc.

But while these factors determine the amount of unilateral payments under varying circumstances, the smooth adjustment in the balance of payments depends on items in the balance of trade and the factors determining them. If foreign lendings fluctuate considerably, it may be difficult or impossible for corresponding changes of imports and exports to come about with sufficient promptness. Such maladjustments can result from wide variations in long-term international lending—as illustrated by the vicissitudes of the Latin American nations—and, with even greater frequency and violence, in the case of certain types of short-term capital movements.

Our analysis in this section has proceeded thus far on the

assumption of freely fluctuating exchange rates, which implies little more than the absence of foreign exchange restrictions. Generally it is assumed that long-term capital movements can be expected only on the basis of reasonably stable exchange rates. The exchange rate variations of the above analysis must, therefore, be moderate enough to fulfill the assumption of a reasonable degree of exchange stability.

Short-term capital movements may either be equilibrating or disequilibrating. Equilibrating capital movements are at least partially caused by slight changes in exchange rates and will help to bring these rates back to normal again. Such movements can only be expected when the lender believes that the exchange value of the borrower's currency will fall no further, for they represent movements of capital into the country which suffers from a temporary disequilibrium of its balance of payments. The lender's belief may either rest on an optimistic appraisal of the long run balance of payments situation of the borrowing country or on the certainty that government policies will make it impossible for the exchange value of the borrower's money to deteriorate any further (e.g., the borrowing country's monetary authority may be willing to sell gold or foreign exchange at this price in unlimited amounts). Since the foreign exchange value of the borrower's money is presumed to have reached the lowest point to which the monetary authority allows it to fall, it can from now on only rise, and the lender can therefore only gain and not lose through the temporary investment of his funds in the currency of the borrowing country. This gain will help to attract short-term capital and the supply of foreign exchange on the borrowing country's foreign exchange market will increase, thus alleviating a condition of temporary stringency, the foreign exchange rate will tend to return to normal.

Equilibrating capital movements, like the use of reserves of international currency or gold, have a special position in the

balance of payments. They are balancing items rather than items that call for balancing through other transactions in the balance of international payments.

Capital movements may, however, be dangerously disequilibrating. When, owing to a disequilibrium in the balance of payments, the price of foreign exchange rises *and is expected to rise still further*, speculators will tend to buy more foreign currency. In the case of equilibrating capital movements foreign funds move to the country whose exchange market is in need of an additional supply of foreign exchange. But there are instances of excessively large capital movements when domestic funds are eager to leave a country in fear of further depreciation (capital flight movements, hot-money movements) and to move into a country where there already exists a surplus of liquid funds. The effect of such movements is, of course, that the price of foreign exchange will rise still further; the anticipation of a price-rise is likely to bring about its own realization and capital movements of this dangerous type may, therefore, easily become cumulative and self-aggravating, especially when the domestic credit facilities are not drastically curtailed. Such capital movements indicate clearly a situation in which our basic assumption throughout this chapter—the absence of exchange control measures—could no longer be maintained.

Chapter 12

THE GOLD STANDARD MECHANISM

1 CLASSIFICATION OF INTERNATIONAL PAYMENTS SYSTEMS

Chapter 11 was based on the assumption that the supply of and the demand for foreign exchange are subject to the free play of competitive market conditions, unhampered by government interference. When this freedom is limited we have to deal with problems of foreign exchange control. It should be noted that foreign exchange control is not merely a policy of *influencing* demand and supply on the foreign exchange market.¹ If the governments' attempts to stabilize or to peg exchange rates through sales or purchases of foreign exchange were to be included in our definition of exchange control, international payments systems would in general be nothing but special cases of exchange control. In particular the international gold standard would have to be characterized as a stringent system of exchange control. But nothing would be gained by such a broadening of the meaning of the term.

¹ See, however, the definition by Professor Ohlin: "The term means simply measures to change directly demand and supply on the foreign exchange market." Professor Ohlin distinguishes two different ways of regulating exchange rates: "One consists of sales or purchases by monetary authorities. The other method is to destroy the freedom of the market. We cannot agree with Professor Ohlin's opinion that the difference between the two types should be minimized. Bertil Ohlin, 'Mechanism and objectives of exchange control,' *American Economic Review*, Vol. 27, 1937, Supplement.

The decisive difference between a system of exchange control and a "free" system concerns the right of the individual to buy and to sell foreign exchange freely, i.e., unhampered by quantitative and other restrictions. The citizen of a country with a centrally planned economy cannot enjoy this right. The planned character of such an economy precludes it and, since private traders in other countries can only trade with state agencies of the planned economy, it may well be said that free international payments systems must be substantially modified if they are to include many totalitarian members.

The distinction between "free" and "controlled" international payments systems may be further complicated by the fact that the freedom granted in free systems may only apply to current transactions while certain types of disequilibrating capital movements may be directly controlled by the authorities.

Exchange control systems and free exchange systems may thus overlap in several respects. Only in their extreme forms do they constitute clear opposites. The existence, side by side, of totally planned, partially planned, and essentially unplanned economies, together with the admission that exchange control can be a useful and, indeed, indispensable instrument of international monetary policy, will always blur the outlines of an otherwise important classification.

Exchange control measures will differ according to the structure of the economy whose domestic policies are to be protected against the impact of outside forces. They range all the way from an occasional capital flight tax to the full-fledged international trade and exchange monopoly maintained by a centrally planned system. But it should be noticed that even a totalitarian economy may use its controls with such reserve that trade will flow without discrimination through approximately the same multilateral channels which a free system would use. We should not forget, on the other

hand, that the uncomplimentary esteem in which exchange control is held, stems from experiences which prove that exchange control may become a most dangerous instrument of economic warfare

Free exchange systems also offer an infinite variety of possibilities. In the extreme case the government would refuse even to influence the foreign exchange rates through purchases and sales of foreign exchange and gold. The government could declare that it had no intention of stabilizing or pegging the exchange rates and that the rates were to be left to the free play of competitive market forces. Between such a system of freely fluctuating exchange rates connecting unrelated paper currencies, on the one extreme, and a controlled system restricting even "current" transactions, on the other extreme, will be found those free exchange systems which are practically most interesting in modern economies which are not totalitarian in character. The essential feature of all these free systems (including the gold standard but excluding freely fluctuating exchanges) is that foreign exchange can be freely bought and sold by everybody but that the government tries to influence the exchange rates through counter-balancing sales and purchases.

The different varieties of *free* international payments systems can again be distinguished according to the following criteria.

(1) *The desired degree of exchange stability* Is the rate to be stabilized permanently and rigidly, or is exchange rate flexibility to be achieved through more or less frequent adjustments of the exchange rate (gold parity) to changing circumstances? This difference is important, it distinguishes the old-fashioned gold standard system from more modern attempts to achieve an elastic relationship between international monetary values.

(2) *The desired degree of freedom for domestic monetary and credit policy* This distinction is practically identical with the first

one since, apart from exchange control, changes in the exchange rate (depreciation, appreciation) are the most important means by which to effect international payments equilibrium when the domestic economic policies of the countries in question are not fully co-ordinated.

(3) *The form of "agreement" on which the exchange relationships rest:* As one writer puts it, "Stability of exchange rates between any two countries requires approximate reciprocity of conduct. Nothing that any country could do by itself, no matter how orthodox its behavior, would give it stable exchange rates if other countries chose to pursue a contrary policy."² Some sort of agreement, whether tacit or formal must exist to lead to that minimum of reciprocity or co-ordination which exchange stability and moderate exchange flexibility require. The old gold standard system rested on tacitly accepted rules of monetary behavior. The International Monetary Fund as proposed in Bretton Woods rests on a formal agreement ratified by member countries.

(4) *The extent to which international payments are multilateral:* Is the territory to which freedom of international payments applies unlimited so that money earned by selling goods to one country can be spent on imports from any other country? Or is this freedom of action limited to a certain region or area while the relationships between different regions are subject to exchange restrictions? In this respect, besides others, the distinction between free and controlled systems is none too clear. When multilateral clearing applies to a group of countries only, the group or bloc is fenced in against other countries or other blocks by exchange restrictions. The international payments system of the world would then be based on both the principle of free multilateral exchange (in a narrower or regional sense) and on inter-group relationships

² Charles R. Whittlesey, *International Monetary Issues*, New York, McGraw-Hill, 1937, p. 11.

of the exchange control type. A genuinely multilateral world payments system could be called omnilateral.³

The international monetary policies of modern countries may combine features of the above classifications in great variety and, if technical details were to be included in the classifications, the combinations would indeed be infinite. This does not mean to say that elements of different payments systems can always be combined *ad libitum*. Some of these elements may be mutually exclusive. For instance, discriminatory exchange control excludes, where it exists, multilateral clearing; exchange depreciation is incompatible with rigidly fixed exchange rates; and monetary nationalism does not permit international co-ordination of monetary policies. Of an infinite number of conceivable international payments systems only a comparatively few are consistent in the sense that the means used to reach the desired ends are adequate or that the ends are not conflicting.

2. THE GOLD STANDARD MECHANISM

To many a solution of all international payments problems seems to lie in the general acceptance by all nations of a common standard article which serves both as a unit of account and as a means of exchange. The introduction of an international currency would, however, only substitute one set of problems for another. We would no longer have to worry about exchange rates and their fluctuations but we would be faced with the more complicated problem of how the domestic monetary and credit policies of the different countries of the world could be as completely integrated as a common monetary system would require.⁴ The notion that universal inter-

³ See "Principles of trade—VI: the regional solution," *The Economist*, February 5, 1944, p. 170.

⁴ See the excellent discussion of these problems in J. E. Meade, *The Economic Basis of a Durable Peace*, London, Allen and Unwin, 1940, chapter III.

national integration of national credit policies could be achieved in the foreseeable future is thoroughly fantastic in a world in which domestic spending policies are the most enviously treasured prerogative of fiscal sovereignty.

The world had, at one time, a system of international payments which came near the ideal of an international currency: the gold standard mechanism.

As long as most countries follow the gold standard rules enumerated on p. 105, gold serves both as an international unit of account and as a means of international settlement. If the standard money of a country can at any time be converted into gold coin or gold bullion of specified weight and fineness, the value of the standard metal is rigidly connected with the value of the monetary unit. If the same conditions exist in another gold standard country it is obvious (1) that the rate at which the two standard units will be exchanged for one another must be determined by their respective gold parities and (2) that, if imports and exports of gold are freely permitted, gold can always be used as a means of international payment since nothing but the small cost of transferring gold from one country to the other can interfere with an exchange, *via* gold, of one currency for the other at their respective gold parities.

Where the monetary authority of a country promises to sell gold freely in unlimited amounts at a fixed price, the supply of currencies of other gold standard countries becomes perfectly elastic since gold can buy these other currencies in unlimited amounts at a fixed price. Strictly speaking, the supply of foreign exchange becomes perfectly elastic only at the so-called upper gold point or gold export point. The following case will serve as an illustration.

Suppose that one gold sovereign contains 123.274 grains of gold, eleven-twelfths fine, while one dollar contains 25.8 grains of gold, nine-tenths fine. On this basis the pound-dollar rate is established at \$4.866:1. Assuming further that the cost

of sending a pound sterling worth of gold from New York to London is 2.5 cents, an American can always get pounds sterling at a price not higher than \$4.891 (viz., $\$4.866 + \0.025). An American buyer of pounds sterling, therefore, need not pay more for British money, and the price of British money cannot rise above the gold export point. At this level the supply of pounds sterling on the American foreign exchange market becomes perfectly elastic.

Similarly, an American owning claims on English money has, under the same assumptions, the choice either of selling his claims on the American foreign exchange market or of collecting in England in pounds sterling, then buying gold in England with pounds sterling, shipping the gold to the United States and converting it into dollars. He will, therefore, not sell a pound sterling for less than \$4.841 (viz., $\$4.866 - \0.025) the so-called gold import point or lower gold point. At this point the demand for foreign exchange would become perfectly elastic because nobody could lose money in buying foreign exchange at this price since the monetary authority in the United States is willing to buy any amount of gold offered at the gold-dollar parity.

Since the supply of foreign exchange becomes perfectly elastic at the gold export point and the demand perfectly elastic at the gold import point, the pound-dollar rate in our example cannot fluctuate by more than 5 cents.

The distance between the gold points could be changed artificially. Mutual holdings of "earmarked" gold reserves could reduce the spread to the vanishing point, while the spread could be increased if the monetary authorities establish different buying and selling prices for gold.

Since the gold standard system rests on a perfectly elastic supply of gold, and since the supply of gold is not inexhaustible, we must explain how international payments equilibrium can be re-established, once it has been disturbed, before the whole of the gold reserve has been drained out of a country.

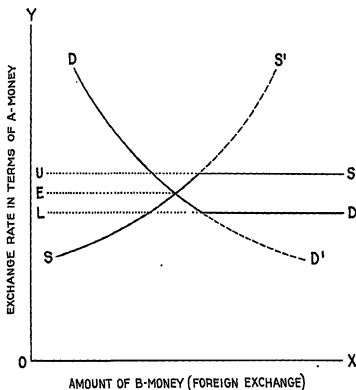
Obviously, when all gold is lost, the basic assumption of the gold standard—free convertibility of money into gold—cannot be maintained and the price of foreign currencies will rise above the upper gold point.

If a country wants to remain on the gold standard in the face of a dangerous decline of its gold reserves, it has to see to it that the market demand for foreign exchange decreases or that the market supply of foreign exchange increases or both. To achieve these results the country has to subordinate its domestic monetary policy to the one objective of equilibrating its foreign payments since a rising price of foreign exchange (above the upper gold point) is ruled out by our assumption that the country remains "on gold."

Suppose that country *A* has to make additional payments of one kind or another, say for purchases abroad of securities, to country *B* (which stands for the rest of the world). In other words, the demand curve on *A*'s foreign exchange market, (i.e., the demand for *B* exchange) is shifted to the right, and the price of foreign exchange (which, we assume, had been in an equilibrium position equal to the gold parities of *A* and *B* currencies) increases. If the price of foreign exchange could rise sufficiently high, there would be an increase in the amount of foreign exchange supplied by exporters and a decrease in the amount of foreign exchange demanded by importers, and international payments equilibrium would be achieved; the difference in the amount of foreign exchange offered by exporters and bought by importers would be just large enough to finance the assumed capital export (purchase of securities).

But a price of foreign exchange high enough to accomplish this excess of exports over imports may easily be above the upper gold point and cannot be permitted under gold standard conditions. Since the supply curve is perfectly elastic at the gold export point, a shift of the demand curve to the right has no further effect upon the price of foreign money (Fig. 19).

That the additional demand for foreign exchange (due to import of foreign securities, i.e., capital export) raises the exchange rate from its equilibrium position towards the upper



E indicates the equilibrium position determined by the gold parities of *A* and *B* currencies

U is the upper or gold export point

L is the lower or gold import point

FIG. 19

gold point means in itself that the rate tends towards a new equilibrium point at which a greater supply of foreign exchange is forthcoming, because country *A* (the capital exporting country) becomes a cheaper country to buy in while at

the same time *A*'s purchases in country *B* (the securities exporting, i.e., capital importing country) decrease as the result of a higher price of *B*'s money in terms of *A*'s money. In the case of "freely fluctuating exchanges" this would be the whole of the equilibrating mechanism. In the case of the gold standard, the adjustment mechanism changes its character as soon as the gold export point is reached. The exchange rate cannot climb up any further, and thus loses its equilibrating function, and the gold standard mechanism takes over from here on. The upper gold point establishes, as it were, a ceiling price for *B*'s currency. Ceiling prices are often lower than market prices would be under the circumstances; in other words, the amounts demanded and supplied are often not equal at the ceiling price. But under gold standard conditions they are made equal through additional supply out of gold reserves. The difference between the amounts of foreign exchange supplied and demanded at the upper gold point is made up by gold exports. Gold arbitrageurs send gold to country *B*, convert gold into *B*-money and supply *B*-money in country *A*'s foreign exchange market. Since they buy gold from *A*'s monetary authorities, the circulation of domestic money in *A* will decrease by an amount which is at least equal to, but may be several times larger than, the amount of the gold outflow. In country *B*, on the other hand, domestic purchasing power is increased by the gold purchases of *B*'s monetary authorities by an amount at least equal to, but possibly also several times larger than, the amount of the gold inflow.

The restoration of international payments equilibrium is supposed to be the automatic result of the gold flows upon the economies of both the gold-losing and the gold-receiving countries. In the gold-losing country the contraction of monetary circulation will reduce money expenditures and incomes. Prices and costs will tend to fall, attracting foreign

purchasers and discouraging importers. But interest rates will rise owing to credit contraction. Increasing rates of interest will attract short-term funds from abroad. This influx of foreign funds will be further encouraged by the fact that *A*-money is at the moment—while the exchange rate stands at the gold export point—cheap in terms of *B*-money so that whoever buys *A*'s obligations at this price is liable to gain from a future improvement of *A*'s exchange rate.

All these reactions work in the same direction; they tend to increase the supply of, and to decrease the demand for, foreign exchange in country *A*'s foreign exchange market. As a result of a fall of expenditures, prices, and costs, *A*'s imports will decline and its exports will rise. The gold outflow has, ultimately, the same effect which a rise in the price of foreign exchange (above the gold export point) would have had immediately; it will achieve the "gap" between imports and exports which is needed to furnish the foreign exchange demanded for the capital export. And the possible (offsetting) influx of short-term capital will make for an easier adjustment and may even anticipate and prevent any actual gold movements. The basic features of the gold standard mechanism are the contraction which it causes in the gold-losing, and the expansion in the gold-receiving countries. These reciprocal contraction and expansion processes constitute an automatic tendency toward integration of the two countries' monetary and credit policies.

How the gold flow affects the domestic credit policies of the gold standard countries can be easily understood when we remember the structure of a typical modern monetary system as discussed in chapters 3 and 4. Since the gold arbitrageur, who exports the gold, has to pay for it in domestic money, say by bank check, his demand deposit with his commercial bank is reduced. Suppose that the gold is sold by the country's central bank. The transaction (the purchase of gold) will then

reduce both the arbitrageur's deposit with his commercial bank and this bank's reserve deposit with the central bank by the same amount. Since we assume only fractional reserves are required, the commercial bank's reserve position will be weakened. If, at the time of the gold purchase, the bank holds no excess reserves but only the legally required reserves, it will have to call in loans or sell securities, i.e., contract credit—unless help from the central bank is forthcoming. If, before the gold purchase, the commercial banks, taken together, had just barely enough reserves, the loss of reserves by one bank may set in motion a process of cumulative contraction which is the exact opposite of the expansion process explained on p. 42.

The central bank of course, could counteract this contractionist process through extending credit to the commercial banks or through open market purchases. According to the strict rules of the gold standard game it is not supposed to do so. On the contrary, the central bank which sells the gold may be forced to reduce the commercial banks' reserve deposits still further. Suppose that the Bank Act of the country provides that the central bank must keep a gold reserve of say, 40 per cent against its deposits (and notes in circulation). Thus, if the central bank sells *gold out of this reserve*, that is, if it has no excessive gold reserves, it has to reduce its deposit liabilities by 2.5 times the same amount. This can be accomplished by calling in loans previously granted or by selling securities on the open market. A policy of credit contraction could only be avoided if the central bank had gold in excess of the amount needed for "backing" ("cover") requirements.

If the gold standard mechanism is to work according to strict rules and quite automatically, the central bank should not have any extra reserves of gold over and above the backing reserves. Once the central bank begins to set aside "buffer" reserves of gold or foreign exchange it does so with the intention of creating a margin within which a gold outflow would

not have to lead to credit contraction and the system, therefore, need not tend towards equilibrium.

At present we assume that no such buffer reserves exist; that is, that the amount of gold before the gold outflow was just large enough for the backing requirements and we assume further that commercial banks have no excess reserves. Under these conditions the gold outflow would have the maximum contractionist effect that can be expected on the basis of established reserve ratios. If, e.g., the central bank were to sell \$1 million worth of gold, it would have to reduce its deposit liabilities by \$2.5 million. The commercial banks, in turn, would have to contract credit by an amount perhaps 5 to 10 times greater, depending on whether the legal (or customary) reserve requirement is assumed to be 20 or 10 per cent. The total reduction in the country's monetary circulation as a result of a gold outflow of \$1 million might, therefore, be as high as \$25 million. While this is, of course, an extreme case, it indicates the possible multiple credit contraction that may be caused by a gold outflow.

Exactly the opposite effect is supposed to take place in the gold inflow country. The imported gold is sold to the central bank and the central bank's gold reserve increases. The central bank can now expand its deposit liabilities through, say, open market purchases. As a result of these operations, the commercial banks find themselves in the possession of increased reserves and can, through a process of multiple credit expansion, increase their loans and investments to the degree permitted by the legal or customary reserve ratio.

Again it has to be emphasized, however, that this is an extreme picture and that the potential credit expansion may never materialize. Later on we shall see that the exact quantitative relationships between gold inflow and credit expansion are even less certain than the relationships between gold outflow and credit contraction. The reason is that credit expansion rests (in capitalist economies) on the demand for loans

by private firms and that this demand, which depends on profit expectations, cannot be determined by the monetary authority alone.

Supporters of the gold standard have often over-stressed the effects of credit contraction and credit expansion upon prices and costs. The price level of the gold-losing country was to come down, that of the gold-receiving country was to rise, and this reciprocal price movement was considered as essential for the return to international payments equilibrium. This all too academic approach has now given room to a more realistic interpretation, according to which contraction and expansion will influence exports and imports of the countries concerned through primary expenditures and secondary changes of incomes. Expansion leads, through accentuated economic activities, to increased imports while contraction cuts imports down, not primarily because home prices fall and foreign prices rise, but because reduced productive activity needs fewer raw materials and because people with reduced incomes cannot afford to import luxuries.

Nevertheless, in the long run the different national price levels tend to be integrated, or aligned by the gold standard mechanism. The actual or possible movement of gold acts as a kind of automatic disciplinarian of the credit policies of the several countries. If credit is expanding more rapidly in one country than in others, the relative increase of the income and price level in that country will be followed by an adverse change in its foreign balances and a consequent depletion of its monetary gold. The gold movement has the combined influence of retarding the credit expansion in the country in question and of encouraging more liberal credit policies in the other countries, whose gold stocks are augmented. In the same manner a deflationary tendency in one country may be communicated to others by attracting gold away from them. The essence of the international gold standard game in regard to domestic monetary expansion and contraction is to keep them in step with the other countries.

The member countries in a gold standard system can be likened to the commercial banks in a national banking system. Just as gold outflow and gold inflow keep the gold standard countries on an even keel, so are the commercial banks of a national banking system kept in line by the outflow and inflow of cash. But while the member banks are controlled by a central bank, no such controlling leadership exists (at least theoretically) in the gold mechanism. If all commercial banks expand loans simultaneously, the central bank may still force all of them (through open market sales) into contraction. But if all the member countries of a gold standard system follow parallel inflationary policies, there will be nothing to hold them back, because no country needs to lose gold to the other countries and there is no Super Bank to control their credit policies.

3. DIFFERENT GOLD RESERVE SYSTEMS

Our explanation of the gold standard mechanism was based on the assumption of percentage reserves to be held by the commercial banks against the demand deposits of their customers and by the central bank against the reserve deposits of the member banks. The central bank's reserve had to consist of gold.

This percentage system is only one method by which changes in the monetary gold stock are translated into changes in the monetary circulation of the gold standard countries. Other methods shall be mentioned briefly.

(1) Where the circulation consists of gold coins only, the gold flow would cause contraction and expansion without any multiplying effect. "Variations in the national circulations only proportional to changes in the quantity of gold in the country" would be ideal according to Professor Hayek,⁵ since a system of *multiple* expansion and contraction in response to

⁵ See F. A. von Hayek, *Monetary Nationalism and International Stability*, London, Longmans, Green & Co., 1937.

changes in the gold reserve disturbs the investment activities in the countries concerned. Professor Hayek proposes to reduce "proportionally the gold equivalents of all the different national monetary units to such an extent that all the money in all countries could be covered 100 per cent by gold," and to allow from that day on "variations in the national circulations only in proportion to changes in the quantity of gold in the country." It is, of course, highly doubtful whether merely proportional changes in the monetary circulations would be strong enough to call forth the desired changes in the international payments situation.

(2) The British Act of 1844 (Peel's Act) introduced the method of the so-called "fixed fiduciary issue" of bank notes. "It requires that the amount of the note issue shall not exceed the amount of the gold reserve by more than a stated amount fixed by law (but capable of revision, of course, from time to time)."⁶ Under this system paper money could be substituted for gold coin in circulation and a cheaper currency achieved. Since the fiduciary note issue was limited to a fixed amount and since the rest of the note issue was backed by 100 per cent in gold, redemption was always assured and the gold flow had the effect of changing the monetary circulation proportionally as in (1). It should be remembered, however, that the subsequent evolution of deposit money frustrated this ingenious regulation of note issue.

(3) Ricardo suggested in 1816⁷ that the central bank should exchange its notes at a fixed price against gold bullion rather than gold coin. By substituting a gold bullion reserve for a gold coin reserve and promising redemption in bullion only rather than in coin, any demands for redemption of notes were automatically reduced to the amount needed for international

⁶ J. M. Keynes, *A Treatise on Money*, Vol. 2, New York, Harcourt, Brace and Company, 1930, p. 266.

⁷ David Ricardo, *Proposals for an Economical and Secure Currency; with Observations on the Profit of the Bank of England etc.*, London, Murray, 1816.

payments, eliminating redemption demands arising from the people's desire to use gold coins in domestic circulation.

(4) The percentage method was first applied to bank notes alone and only later in some countries was it extended to include the deposits of central banks. This method has great shortcomings, however. It requires much more gold than the "fixed fiduciary issue" method and it can make gold available for export purposes only through multiple contraction. When only bank notes in circulation have to be backed by a fixed per cent in gold, the system seems to be less dangerous in terms of multiple expansion and contraction than the system described in the above explanation of the gold standard mechanism under which central bank deposits had to be covered by 40 per cent in gold. But it must be remembered that there exists, in modern monetary systems, a definite relationship between token money and deposit money which is established through custom though it is not legally sanctioned. The central bank cannot easily in the short run influence the payment habits of the population. A deviation from the customary ratio between token and deposit money, caused by an increase in the latter due to expanded bank credits, would lead to a highly dangerous illiquidity of the whole banking system which the central bank could avert only by making loans to the banks and increasing the circulation of bank notes, or—in a more orthodox way—by enforcing a contraction of bank credit and deposit money. The outflow of gold will either have semiautomatic effects, which may be cumulative under the fractional reserve system with its multiple expansion and contraction, or its effects must be consciously counteracted through unorthodox central bank policies.⁸

⁸ The percentage method was, of course, originally designed to prevent the use of such unorthodox methods, that is "to limit the discretionary power of the central bank on account of the risk of the latter proving subservient to the imprudent demands of the Government, and consequently

(5) Recent practice rather than the rationale of the gold standard mechanism has led to a division of gold reserves into "cover" reserves and "buffer" reserves, the first with the function to "support" (whatever that may mean) the domestic currency, the latter for the use as international money.⁹ This hybrid system can be defended only on the grounds that the buffer reserves will cushion the effect of the gold outflow. If credit contraction is not intended at all as a consequence of a gold outflow, the cover reserve becomes a completely useless waste of gold and the gold could preferably be used entirely as a reserve of international money. As a mere reserve for international settlements gold may be equally useful for any kind of monetary policy which wants to maintain temporary exchange stability in the face of a balance of payments disequilibrium. The domestic monetary standard, then, of course, does not have to be the gold standard.

(6) The institution of exchange stabilization funds is nothing but a modernized way of holding buffer reserves. That separate funds were introduced is due to the fact that the secrecy of their operations is believed to be of great importance since "speculators of the kind who deliberately engineer fluctuations in the exchanges have to operate, if at all, with the knowledge that at any moment the enormous resources of the exchange equalization funds may suddenly be brought to bear against them."¹⁰

making advances to the Treasury which must involve an inflation of the note-issue." J. M. Keynes, *A Treatise on Money*, Vol. II, p. 263f.

⁹ See the excellent discussion by Ragnar Nurkse in League of Nations, *International Currency Experience, Lessons of the Inter-War Period*, 1944, chapter IV.

¹⁰ M. Curtis and H. Townshend, *Modern Money*, p. 251f. The British Exchange Equalization Account was created in 1932 to offset speculative movements in sterling exchanges; the American Stabilization Fund was established in 1934 to promote greater exchange stability. The typical exchange stabilization fund should consist of both domestic and foreign

(7) Countries which are short of gold can adopt a make-shift gold standard by linking their currencies with currencies of gold standard countries. The money of the gold exchange standard country is, then, not convertible into gold but into foreign exchange which can be used for transferring funds into pure gold standard countries. Obviously, this arrangement lacks the reciprocity which is claimed for the real gold standard mechanism. When the currency of the gold standard country *A*, or bank balances of that country, are used in gold exchange standard country *B* as if they were gold, the "gold flow" from *B* to *A* will, in reality, be a flow of *A*-money. This flow will in all probability have a stronger contractionist effect in *B*, where *A*-money performs the cover function, than an expansionist effect in *A*, where *A*-money does not have such a function. The effect in *A* will depend on whether the balances which become again available to *A* are high- or low-powered money (see pp. 32-33).

4. ESSENTIAL CONDITIONS FOR THE WORKING OF THE GOLD STANDARD MECHANISM

The functioning of the international gold standard mechanism as an international payments system presupposes the existence of a number of economic, political, and psychological conditions which have to be given the most careful consideration if the relation between the theory of the gold standard and modern international payments practices is to be understood. A realistic interpretation of the history of modern monetary policy must emphasize the responsibility of the departure of world economic relations from a reasonable approximation to these conditions for the wholesale abandonment of the gold standard during the thirties.

The conditions for the successful working of the international gold mechanism are the following:

money (or gold) so as to be able to counteract fluctuations in supply as well as in demand on the foreign exchange market.

(1) The monetary authorities must be willing to conform to the rules of the game, and to resist the pressures and temptations to pursue conflicting aims of domestic monetary policy. There is, at least for smaller countries, only one course of policy with respect to the internal price level compatible with fixed gold parities and fixed exchange rates; to this the various independent aims of monetary policy discussed in chapter 10 must be wholly subordinated. The mechanism requires that "the main criterion of the banking policy of each country should be the average behavior of all the other members, its own voluntary and independent contribution being a modest one."¹¹ The gold mechanism may force a country into policies which are actually dangerous to domestic economic prosperity or stability. "For it will easily be seen that under a gold standard it is quite possible for the public to be swamping the banks with savings, and yet for the banks to be unable to transform those savings into real industrial capital, because the country's gold reserve is not sufficient to form the basis for an increase in their loans or investments."¹²

A continuous large inflow or outflow of gold is a sign of dangerous impediments in the mechanism which render it incapable of preventing the development of a fundamental balance of payments disequilibrium. If gold continues to flow into a country, this country will probably attempt to avoid inflationary consequences by sterilizing the inflowing gold. But in doing so it violates the rules of the gold standard game. By accumulating excessively large gold stocks a country may be able to determine the value of gold by its own domestic monetary and credit policy, while according to the true meaning of the gold mechanism the value of gold should

¹¹ J. M. Keynes, *A Treatise on Money*, Vol. 2, p. 303. The leading countries, of course, have the possibility to dictate to a considerable degree the international price policy.

¹² A. C. Pigou and D. H. Robertson, *Economic Essays and Addresses*, London, P. S. King & Son, 1931, p. 197f.

depend on the average behavior of all the members of the international gold standard system. Furthermore, when the gold-receiving country refuses to expand its monetary circulation it aggravates the deflationary pressure of the "specie flow" upon the gold-losing countries. The continued drain of gold and the resulting deflation—causing depression and unemployment—will lead, sooner or later, to the abandonment of the gold standard.

(2) The classical version of the "price-specie flow" theory assumes a high degree of flexibility of the price systems of the member countries. When the monetary pressures of gold movements are exerted, the price levels are supposed to rise or fall like water in a lock, accompanied, of course, by smooth adjustments of costs. In reality, however, these changes are not achieved instantly and not without political frictions. Among the many price rigidities which have to be taken into account, one of the most important is the inflexibility of wage rates where strong trade unions are firmly resistant to downward adjustments. The influence of union policy is the more important if maladjustments resulting from the rigidity of other cost items (like taxes, interest rates, or prices of imported materials) can be mitigated only by highly flexible wages.

(3) Absence of disturbing capital movements is essential. If profits are expected to rise together with prices, capital may be attracted from abroad so that capital may actually flow into the country, causing a further credit expansion when contraction would be advisable according to gold standard principles.¹³ Flight capital movements are entirely heedless of variations in the respective rates of interest and are capable of destroying the whole gold mechanism. The changes in the total quantity of money which would be

¹³ See J. H. Williams, "The adequacy of existing currency mechanisms under varying circumstances," *American Economic Review*, Vol. 27, 1937, Supplement, p. 154f.

necessary to cope with the situation by orthodox central banking techniques might be so great as to entail dangerous deflationary results in the country from which the capital flight takes place.

(4) Although free trade is not a necessary condition of a successful functioning of the gold standard, an increasing amount of control measures and restrictions of international commerce hinder those adjustments which are the very essence of the mechanism. This is particularly true of import quotas, which greatly reduce the efficiency and smoothness of any international payments system.¹⁴

5. ADVANTAGES OF THE GOLD STANDARD MECHANISM

We are now in a position to evaluate the gold standard mechanism as a system of international payments. First we shall summarize the real and alleged advantages of the international gold standard; then we shall analyse its major disadvantages..

(1) *Stability of exchange rates.* The outstanding advantage of the old (pre-1914) gold mechanism was that it guaranteed stable exchange rates among the countries which decided to become members of the international gold system by adhering strictly to the free purchase and sale of gold at a fixed price. Thus, gold was used as an international unit of account and the exchange rates could fluctuate only within the rather narrow limits of the gold export and import points. Stable exchange rates were a reliable foundation for international trade and for international capital movements. Since the advantages of international division of labor are perfectly obvious from a strictly economic point of view, we can attribute to the gold standard mechanism at least part of the

¹⁴ League of Nations, *Quantitative Trade Controls, Their Causes and Nature*, Geneva, 1943, p. 23.

increase in the standard of living which was enjoyed by a rapidly increasing world population as the result of an international co-operation that rested on the secure basis of stable exchanges.

Public confidence in the stability of the foreign exchange rates and in the relative stability and predictability of the credit policies in all gold standard countries made the gold standard mechanism in the eyes of many preferable to a system of freely fluctuating exchange rates in which the monetary policies of the different countries are free to deviate from one another to virtually any desired degree. Fluctuating exchanges, it is true, tend to counteract the influence which diverging price developments in different countries exert upon international trade. But an additional variable in the calculation of prices introduces an additional factor of insecurity into business calculations.

(2) *Stability of gold value.* Gold has maintained a reasonable stability of purchasing power over extended periods. Not only have the exchange ratios between different currency units been stabilized by the gold mechanism, but the world price level itself has been kept anchored to gold. A remarkable stability of the value of gold in several long periods before 1914 cannot be denied; but it must be pointed out that gold contributed to this result only through a quality which it shares with all durable goods—namely that the addition to the total supply in any year is relatively small. As has already been shown on p. 106, the value of the standard metal depends at least as much on monetary management as on its own supply. Since the price of gold remains unchanged under gold standard conditions, the purchasing power of money and gold are identical, and the value of money, in turn, depends on its total quantity—i.e., not merely on the supply of the metal but also on the whole superstructure of money which can be based on the gold reserve. Gold determines only the base of the monetary pyramid; the actual reserve ratios which con-

nect standard money with token and deposit money account for the rest.

(3) *Intrinsic value of gold.* By the same reasoning one can easily invalidate the economic significance of the so-called intrinsic value argument, which is so frequently heard in defense of the gold standard. It is absurd to argue that our whole credit structure is sound only when it rests "on the intrinsic usefulness and value of the money metal."¹⁵ The intrinsic value argument is correct, however, when it merely refers to the simple fact that gold, when sent from country to country, carries its value with it, or to the fact that there exists a tremendous prejudice in favor of gold which may well be used to good advantage when gold is established as international monetary unit.

(4) *The "golden brake" of the credit machine.* The gold standard mechanism permits small doses of expansion and contraction but rules out deflations and inflations of the more violent and self-generating type. The internal credit policy of any one gold standard country is kept in line with the average behavior of the participating countries. No single country on the gold standard can embark to any considerable degree or for any considerable length of time upon inflationary or deflationary policies unless such policies are followed by the majority of the members of the international gold standard system. Any single country or any minority group of countries in which commodity prices are inflated or deflated more than the average are soon forced into line by international gold movements. The gold flow acts as an automatic brake on credit expansion and credit contraction.

(5) *Protection against irresponsible governments.* The gold mechanism is thought to be the most reliable protection against irresponsible actions on the part of the monetary authorities at home or abroad and especially against outright

¹⁵ See *The Guaranty Survey*, September 28, 1943, p. 2.

inflation. The friends of the gold standard believe that, once we have subscribed to the rules of the gold standard, we have renounced the dangerous ideas of government deficit spending and pump-priming. Of course, if we regard the central bank "as a stupid or weak-kneed creature, which is incapable of taking intelligent charge of events, or which is liable to put its money-creating powers too easily at the disposal of a needy Government, we shall be relieved that its capacity for mischief is kept within bounds by a golden chain."¹⁶ This chain could easily be broken though. "An Act of Parliament is a very ineffective method of curtailing the powers of a government; and in almost every known case of stress and strain, in which the Note Regulations interfere with the wishes of the Government of the day, it is the former which have given way."¹⁷

(6) *Maintenance of sovereignty.* The different countries are kept in line with the average behavior of other gold standard countries without having to submit to controls by an international authority. This argument that the gold mechanism does not impair national sovereignty is formally and superficially correct; but, as a matter of fact, in playing the gold standard game, the member countries submit to rigid rules and, indeed, sacrifice the sovereign right to carry out whatever fiscal policies their domestic situations may require.

(7) *Automatism and simplicity.* The gold mechanism works semiautomatically, is not complicated, and requires few restrictions. Since the rules of the game are known to all players, the actions of the monetary authorities are foreseeable—a fact which introduces a further element of security into international relations.¹⁸ Yet, that the gold standard is simple and easily understood is not quite correct. The fundamental idea is clear. The effects of the gold flow upon the

¹⁶ Pigou and Robertson, *Economic Essays and Addresses*, p. 197.

¹⁷ J. M. Keynes, *A Treatise on Money*, Vol. 2, p. 264.

¹⁸ See F. A. Hayek, "A commodity reserve currency," *Economic Journal*, June-September 1943.

national credit structures of the member countries, however, are complicated and depend on so many factors that conscious management becomes imperative. The main difficulties arise with the attempts to adjust prices and costs downwards as well as upwards. These difficulties sometimes prove to be quite insurmountable for the monetary authority.

(8) *Reserve of international liquidity.* Where "cover" reserves and "buffer" reserves are distinguished, or where "excess reserves" of gold are available, the gold standard provides reserves of international liquidity as shock absorbers. Buffer reserves protect cover reserves so that in case of international payments disequilibrium a gold outflow will not cause immediate credit contraction or credit expansion. The necessary adjustments do not have to be carried out hastily. This, of course, takes away from the "automatic" character of the gold standard mechanism and, from a certain point of view, could be called a violation of the rules of the game.

(9) *Automatic replenishment of reserves.* The gold standard mechanism is so designed that, while a gold outflow decreases the gold reserves, it tends, at the same time, to replenish them automatically through bringing about a chain of reactions resulting in larger exports, smaller imports, and short-term capital inflow. It also tends towards a reasonable distribution of gold among the member countries as long as they all act according to the rules of the game.

(10) *Advantage for gold producing countries.* Finally it must not be forgotten that the friends of gold will always find strong political support in countries which gain special advantages through the world-wide use of gold for monetary purposes. A country that produces gold at a comparative advantage (or at a comparatively smaller disadvantage) is, of course, from a national point of view, interested in the maintenance of the international gold standard. It produces a product which enjoys the unique advantage (under gold standard conditions throughout the world) of being salable in unlimited amounts

at a fixed price everywhere. Even if this should be a minor point in comparison with possible disadvantages of the gold standard, it would still be one of those benefits which accrue, first of all, to a small privileged group, the gold-mining industries, and is therefore the more likely to be staunchly defended.

6. DISADVANTAGES OF THE GOLD STANDARD MECHANISM¹⁹

In spite of the above mentioned advantages the gold mechanism has little chance of being reintroduced in its old-fashioned form. This is partly due to the experiences during the inter-war period when the gold standard came back to a short and troubled life. The mere mentioning of rampant nationalism, price rigidities, volatile capital movements, obstacles to international trade (among which foreign exchange control played an increasingly important role) shows that the conditions for a successful functioning of the mechanism were then not fulfilled. One could perhaps be tempted to argue that the gold standard was not to blame, because it had been revived at a time when the countries of the world were not willing to play the game according to the rules. Nevertheless, in going back to gold, the countries had indicated their willingness to stick to the rules, and that they were unable to do so points to basic difficulties resting in the mechanism itself rather than in a particular historical period.

(1) *A fair-weather craft.* Independently of any concrete historical situation, it may be stated as a first objection that a perfectly smooth functioning of the gold standard mechanism requires a degree of flexibility and stability in the economic structure of the world in general which may be obtainable only as the result of a highly fortuitous combination of circum-

¹⁹ Some of the formulations in this section are taken from the author's *International Monetary Cooperation*, Chapel Hill, The University of North Carolina Press, 1945, chapter 2.

stances. It is a fair-weather craft, of doubtful seaworthiness in stormy waters. When the necessary conditions cannot be fulfilled, the gold standard is abandoned, and it becomes the task of "paper" standards to manage the bad situation. This incidentally, may be an important reason for the rather uncomplimentary esteem in which inconvertible currency systems are held in many circles.

It has been suggested that the successful functioning of the pre-1914 gold standard was "greatly facilitated by the circumstance that it operated in a rapidly expanding economy and under the favorable condition of an upward trend in prices."⁹ The deflationary bias of the system, which will be discussed presently, was over compensated by world-wide credit expansion. "Maladjustments can more easily be corrected in a society which is rapidly reaching out into new areas, developing new resources, creating new industries, and supplying the growing needs of an increasing population." Prior to World War I we could, furthermore, assume that "the wage rates in each country would quickly become adjusted to productivity in conformity with the principle of comparative advantage."¹⁰

Until 1914 the gold standard mechanism was rarely put to really severe tests. Major international disruptions were absent, the price-cost structures of the different countries were easily kept in conformity with the gold prices, and international capital movements served mainly to put sufficient reserves of foreign exchange at the disposal of those countries which were, at the moment, in need of it.

(2) *Cause of violent strains.* That the gold standard is abandoned under adverse conditions is, of course, the result of the unwillingness of policy makers to accept the discipline and

⁹ A. H. Hansen, *Full Recovery or Stagnation?*, New York, W. W. Norton 1938, pp. 210, 212. see also H. D. Henderson in *The Problem of Monetary Stabilization*, Paris. International Chamber of Commerce, June 1936 p. 161f.

the sacrifices which it imposes. But it must be understood that in the face of potent causes of international payments disequilibrium the system becomes increasingly difficult to handle from the standpoint of domestic economic policy as a whole. This reduces very considerably the argument that the gold standard is superior to other monetary policies because of its automatic character. It has been said that the presumption is rather to the contrary. "For a nationally managed standard would not subject the country's internal economy to such violent strains as those to which the attempt to continue to conform to an international standard may subject it; so that the inherent difficulty and the necessary sacrifice will be less in the former case than in the latter."²¹

The "automatic" character of the gold standard mechanism must not be overstressed. Credit contractions and credit expansions are involved, difficult and dangerous operations. Often enough the central bank may not be able, even though willing, to engage in a policy to reduce costs and prices sufficiently when gold flows out, or to create enough demand for new loans when gold flows in. "In the modern world, where, on the one hand, inflows of gold are liable to be sterilised and prevented from causing an expansion of credit, whilst on the other hand the deflation of credit set up elsewhere is prevented by social causes from transmitting its full effect to money-wages and other costs, it may be that the whole machine will crack before the reaction back to equilibrium has been brought about."²²

(3) *Anachronism in times of full employment policies.* The gold standard mechanism becomes an anachronism when monetary conditions and monetary policy are "recognized as too important and too close to the heart of fiscal sovereignty to be entrusted to any automatic or even semiautomatic sys-

²¹ J. M. Keynes, *A Treatise on Money*, Vol. 2, p. 299.

²² See *Committee on Finance and Industry Report* (Macmillan), Cmd. 3897 London, H. M. Stationery Office, 1931, p. 108.

tem.”²³ Since 1914 the governments of the several “member” countries have learned to look at their credit and government spending policies as indispensable weapons in their struggle for full employment and it has, therefore, become increasingly impractical that these policies should be subjected to the single aim of keeping the exchange rates stable. Following their own often misconceived and short-sighted ideas of a national credit policy instead of following the rules of the gold standard game, the nations of the world began to pull away from one another and to strain the unifying mechanism to the breaking point:

Monetary policies are now rather generally considered as integral parts of an economic policy which aims first of all at domestic economic stabilization at a high employment level, and at stable exchange rates only inasmuch as fluctuating exchange rates would endanger domestic stability. The Board of Governors of the Federal Reserve System, for instance, declares that the monetary objective should be economic stability rather than price stability and “that economic stability cannot be achieved by monetary policy alone, but that the goal should be sought through co-ordination of monetary and other major policies of the Government which influence business activity, including particularly policies with respect to taxation, expenditures, lending, foreign trade, agriculture and labor.”²⁴ This is a far cry from the typical attitude of a central bank under the old gold standard system.

(4) *More contraction than expansion.* The gold standard mechanism suffers from an “inherent bias towards deflation.”²⁵ The gold-losing country must contract credit in order to maintain its gold reserves. The gold-receiving country, on

²³ Robert B. Bryce, “Basic issues in postwar international economic relations,” *American Economic Review*, March 1942, Supplement, p. 178.

²⁴ See *Federal Reserve Bulletin*, September 1937, p. 828.

²⁵ See Joan Robinson, “The international currency proposals,” *Economic Journal*, June-September 1943, p. 161.

the other hand, is under no equal compulsion to expand credit to check the gold inflow. In other words, the mechanism lacks sufficient reciprocity. In this connection we should also remember that the central banks have, as a rule, more power to force their member banks into credit contraction than to force them to expand. A central bank "cannot insure demand for member bank credit; it can and does insure the availability of ample member bank credit when and if demand exists."²⁶

Two more reasons have been mentioned for a lack of reciprocity in the gold standard mechanism. "One is the unequal importance of the balance of payments as between countries whose foreign trade and other payments are large relative to the home economy and countries for which foreign trade is less important. The other is the unequal size of countries. Gold standard theory was based on the principle of interaction between homogeneous countries of approximately equal size." Referring in particular to the United States it has been pointed out that "a large export surplus, or any other change leading to substantial gold inflow, would be likely to have a far less expansive effect here than contractive effect upon the deficit countries."²⁷

(5) *Cause of unemployment.* Gold standard and vigorous trade union policies are not compatible with each other. The gold standard confines "the natural tendency of wages to rise beyond the limits set by the volume of money, but can only do so by the weapon of deliberately creating unemployment."²⁸ If wages rise, prices likewise will have to rise since "each national price-level is primarily determined by the relation of the national wage-level to efficiency; or, more

²⁶ *The Federal Reserve System—Its Purposes and Functions*, Washington, D.C., 1939, p. 58.

²⁷ John H. Williams, "The postwar monetary plans," *American Economic Review*, March 1944, Supplement, p. 374f.

²⁸ Lord Keynes, "The objective of international price stability," *Economic Journal*, June-September 1943, pp. 185-187.

generally, by the relation of money-costs to efficiency in terms of the national unit of currency." If prices are prevented from rising, increasing money costs will squeeze marginal producers out of production. It is suggested, therefore, that the different countries should be allowed "to pursue, if they choose, different wage policies and, therefore, different price policies." To impose a rigid price level upon a country, as the gold standard does, would mean to submit national wage policies to outside dictation. And since it is not feasible to control money wages by monetary measures, the result of the general tendency of money wages to rise against a stable price level would be unemployment. Consequently it is wiser, according to this suggestion, to regard domestic prices as a matter of internal policy and politics, i.e., to leave national price levels free to adjust themselves to changing costs of production.²⁸

The case of wage policy is only an outstanding example of the fact that the scope for independent domestic action is limited under gold standard conditions. Exchange rates are stabilized at the expense of giving up other possible aims of monetary management.

(6) *Anarchy in world credit control.* Gold reserves, equally distributed and taken religiously as the institutional basis of the permissible credit superstructure, will certainly prevent hyper-inflation. They may, however, cause considerable inflationary and deflationary tendencies throughout the world, not so much because of changes in the monetary gold supply as because of a uniform tendency towards credit expansion or credit contraction in the participating countries. "The value of the yellow metal, originally chosen as money because it tickled the fancy of savages, is clearly a chancy and irrelevant thing on which to base the value of our money and the stability of our industrial system."²⁹

²⁹ D. H. Robertson, *Money*, p. 155.

The gold standard has been called a state of "anarchy in world credit control."³⁰ It is not at all certain that the actions taken by all the central banks will neutralize each other. They might as well lead to a world-wide circle of contraction and expansion. If contraction prevails in a number of countries while the rest of the world is still free from it, the chances are that the diminishing purchasing power of these countries will soon affect the rest. And, in a similar manner but with opposite effects, a vicious circle of inflation may develop. Increased expenditures and incomes in the expansion countries lead to increased imports, and the other countries, exporting more than before, will expand credit, expenditures and incomes. There is nothing in the gold standard mechanism itself that would prevent such a world-wide expansion or contraction.

The often-used analogy comparing the member countries of a gold standard system to the member banks in a banking system is misleading when driven too far. If the central bank is the conductor of the banking orchestra, the concert of the members of the gold standard mechanism can be likened only to an orchestra without a conductor. The gold standard mechanism lacks a central authority which would co-ordinate the national credit policies of the members.

(7) *No escape from managed currencies.* "In the modern world of paper currency and bank credit there is no escape from a 'managed' currency, whether we wish it or not;—convertibility into gold will not alter the fact that the value of gold itself depends on the policy of the central banks."³¹ We cannot choose between purely automatic and managed standards but only between managed standards of different degrees. A system may be semiautomatic in the sense that the international gold movements affect the institutional capacities

³⁰ R. G. Hawtrey, *Trade Depression and the Way Out*, London, Longmans, Green & Co., 1931, pp. 15-18.

³¹ J. M. Keynes, *Monetary Reform*, p. 184.

to grant loans. In smaller countries the management of the internal price level is given comparatively narrow scope for independent action. In larger countries, however, the monetary authorities may have considerable freedom of action to manage the credit system for other objectives (such as domestic economic stability) undisturbed by gold movements.

The distinction between "automatic" and "managed" standards has to give way to the more important distinction between international and domestic stabilization. Here the claim that the *automatic* gold standard combines the advantages of both national and international stabilization has to be rejected. International exchange stability may require deflationary measures in some countries (for example in cases of unilateral payments) that are incompatible with the chosen objectives of domestic credit policy. It is by no means self-evident that stable exchange rates will be preferred under all circumstances if their maintenance involves deflationary and depressive credit restriction.

A clear-cut decision for either international, or domestic stabilization can perhaps be avoided by compromise. Monetary institutions and techniques may develop by which the different countries can be linked together in a manner which guarantees relatively stable exchange rates and gives, nevertheless, time and room for national divergencies ample enough to prevent disturbing repercussions. The International Monetary Fund discussed in chapter 15 is designed to be such an institution.

(8) *Waste of gold reserves.* Gold as a means of international settlement is wasted needlessly by the gold standard system in its orthodox form. "Cover reserves" are indispensable only if we want to achieve strictly automatic credit contraction in a country which is losing gold. If monetary and credit policies could be left to the discretion of the monetary authority, we could do without gold-backing requirements whose effect "is merely to lock away a large part, and sometimes the major

part, of the gold reserve so that it can *never* be used . . . ”³² “Unlocked,” the cover reserves could serve as a fund of highest international liquidity, they could help to bridge temporary balance of payments disequilibria, and they could be used to gain a reasonable amount of freedom in the domestic monetary and general economic policies of the member countries.

Then, but only then, could it be suggested that gold production is less foolish than it may seem to observers from another planet who, through huge telescopes, are watching us and are puzzled as we extract gold laboriously from the bowels of the earth only to put it in a somewhat more orderly fashion and in a different place.

(9) *Gold mining sheer waste under full-employment conditions.* It could, perhaps, be argued that gold production for monetary uses is sheer waste since even the gold’s function as a means of international settlement could be dispensed with through credit arrangements between the members of an international payments system or through the introduction of an artificial international monetary unit.

It has been stated that “the only merit of the gold standard” is that it reduces the need for credit management and that “when gold no longer performs that service gold mining becomes sheer waste.”³³ This statement disregards the fact that nations still prefer to use gold for purposes of international settlements. The same critic reminds us, however, that “under the conditions of the middle thirties the gold mining industry became a gigantic boondoggle which might be justified on the grounds that are generally adduced in favor of putting men at work digging holes in the ground rather than supporting them in idleness.”³⁴

³² J. M. Keynes, *A Treatise on Money*, Vol. 2, p. 265.

³³ Charles O. Hardy, *The Postwar Role of Gold*, The Monetary Standards Inquiry, No. 8, New York, January 1944, p. 20.

³⁴ *Ibid.*, p. 24f.

If certain productive resources could not be employed at all, it can hardly be said that the same resources, when employed in gold production, were wasted. The argument holds true also for a country which, in times of unemployment, acquires gold in exchange for commodities which would not have been produced at all had it not been for the inflow of gold. Both the gold-producing and the gold-importing country, as a matter of fact, will improve their respective positions by more than the value of the gold produced or acquired, since they will enjoy a beneficial indirect effect in the form of an extra contribution to income and employment owing to the increased expenditures of those who were put to work. This interesting phenomenon is often described in terms of the foreign trade multiplier,³⁵ and is analogous to the investment multiplier as described in chapter 21. It will suffice here to indicate that an increase in money expenditure for the production of goods for export may lead to an increase in the national income of the exporting country (i.e., the gold-importing country) which eventually will be considerably greater than the increase in exports of goods and imports of gold. This is due to the fact that the money earned in producing the exported goods (or in producing the gold) is spent on other domestic goods and is apt to lead to a further increase in production. It is obvious, however, that this multiplier effect rests on the assumption of underemployment of productive resources in the gold-producing or the gold-importing country, or in both.³⁶

³⁵ See R. F. Harrod, *The Trade Cycle*, Oxford, The Clarendon Press, 1936, p. 145ff; G. von Haberler, *Prosperity and Depression*, Third edition, chapter 13, section 2; Fritz Machlup, *International Trade and National Income Multiplier*, Philadelphia, The Blakiston Company, 1943; Fritz Machlup, "Eight questions on gold: a review," *American Economic Review*, February 1941, pp. 30-37.

³⁶ The assumption of underemployment is quite realistic for a country which imports large amounts of gold. Continuous gold imports show that

7. THE FUTURE OF THE GOLD STANDARD MECHANISM

It is safe to predict that the "automatic" gold standard mechanism will never return. The orthodox gold standard mechanism stands for rigid exchange rates, rigid gold-backing requirements, reciprocal deflation and inflation according to gold movements, and conservative domestic credit policies with balanced budgets and without deficit spending. All this is unacceptable to those who believe in the Government's responsibility for economic stabilization, full employment, and labor union strength. The refusal of many countries to subscribe to the rules of the gold standard game makes it impossible for the rest of the countries to accept the gold standard mechanism; for a multilateral payment system depends on the co-operation of all, or almost all, countries. No matter how badly some friends of the gold standard want it reintroduced, they must see that the case for it in its orthodox form is hopeless when some of the major countries refuse to be put into the "strait jacket" of gold.

But to suggest that the gold standard mechanism will not come back does not mean to say that gold could not perform an eminently useful role in a modern international payments system. The question is partly a terminological one. If we broaden the meaning of the term "gold standard mechanism" sufficiently, we may even apply it to a payments system in which gold parities are not unalterably fixed and in which the monetary gold serves predominantly or even exclusively as an asset of highest international liquidity (without being locked away by obsolete backing requirements).

the country has not succeeded in expanding credit and, through increasing expenditures and imports, to reverse the trend. This is likely to happen in times of depression which are not only characterized by unemployment but also by a demand for loanable funds that tends to fall short of the available supply.

Questions of terminology would be insignificant if some terms had not become labels for ideologies whose mere mentioning stirs up more emotions and prejudices than are conducive to an objective discussion. The terms "gold standard" and "gold mechanism" are among these unfortunate labels. The discussion of the Bretton Woods plans (see footnote 1 to chapter 15) is a good example for the point in question. The same proposals were called in the British press "the exact opposite of the gold standard" and in the American press "a return to the gold standard." Obviously the former regarded as gold standard system only the "orthodox," "automatic," or "text-book" gold standard. Our discussion of the different backing systems shows, however, that the gold standard may be interpreted more loosely, depending on the amount of discretion reserved for the monetary authority. Even the strictest backing requirements leave room for some "play." The central bank can try to accumulate "excess" or "buffer" reserves. Such systems may still be gold standard systems as long as the monetary authorities buy and sell gold at a fixed price and in unlimited amounts. As in the case of the automatic gold standard, maintenance of fixed gold parities (fixed exchange rates) would be an ultimate guide and objective of monetary policy.

The international payments system is basically changed, however, if member countries are allowed to alter the gold parities of their currencies (i.e., to depreciate or to appreciate) whenever they are confronted with a fundamental balance of payments disequilibrium. The member countries' domestic monetary policies would no longer be dictated by the ultimate necessity of selling or buying gold at a fixed price, i.e., of defending rigid exchange rates at all costs.

Even under these conditions, however, gold could continue to perform several important functions:

(1) It would, during the period between alterations of gold parities, help to maintain a perfectly elastic supply of and

demand for foreign exchange; i.e., it would stabilize the exchange rates.

(2) It would serve as a stopgap during temporary balance of payments disequilibria; i.e., it would remain the most liquid international asset.

(3) It would serve as a common denominator for the different currencies, the nearest approach to an international unit of account that seems at present possible.

(4) It would help to bring those countries which, because they are holders of gold or great gold producers, might easily refuse to become members of a system that would dethrone gold entirely, into the fold of an international payments system.

The issue, therefore, is not whether we shall re-introduce the old-fashioned gold standard system or discard gold entirely; the issue is rather whether gold can be used to advantage in a more flexible multilateral payments system or whether the world will break apart into separate monetary blocs.

Chapter 13

THE EQUILIBRIUM RATE OF EXCHANGE

1. FREELY FLUCTUATING EXCHANGE RATES

Exchange rates are perfectly free to fluctuate if both buying and selling on the foreign exchange markets are free and if the monetary authorities do not try to influence these rates through selling and buying operations (as, e.g., under the gold standard). Without fixed foreign exchange rates and without the desire to maintain them stable, domestic monetary policies are independent of the balance of payments situation and free from "outside interference."

Freely fluctuating exchange rates were our first basic assumption in chapter 11. The gold standard conditions of chapter 12 were considered as limitations (at the upper and lower gold points) of the adjustment mechanism under freely fluctuating exchange rates. The equilibrating effect of variations of the exchange rates was replaced at these two points by the gold flow machinery.

Having critically analyzed the effects of the gold standard mechanism, it seems logical to ask why free fluctuations of the exchange rates should not be permitted to exert their equilibrating influence unchecked, i.e., beyond gold points or any other kind of upper or lower limits; why domestic economic policies should not be liberated from the dictation of outside forces; why international payments equilibrium should not be achieved through the simple device of changing the one "variable" which connects the price systems of any two countries: the exchange ratio between their currencies.

One critic of the gold standard has stated that "there seems

no valid reason to assume, as is commonly done, that, while the principle of supply and demand functions fairly well in goods relationships, it should not be allowed to operate, except within arbitrary restrictions, to determine the price of currencies."¹

Why, then, the nearly unanimous rejection of the system of freely fluctuating exchange rates? Obviously, the arguments against freely fluctuating exchange rates center around the basic contention "that fluctuating parities, by creating additional hazard and uncertainty, will be prejudicial to international trade."² In detail we can distinguish the following criticisms:

(1) Freely fluctuating exchange rates are incompatible with domestic stability because imported and exported articles would vary in price with each change in the foreign exchange rate. Thus it seems doubtful whether domestic monetary policies are quite as unhampered under a system of free currencies as is claimed by its protagonists. Wider latitude for domestic policies is offered by freely fluctuating rather than by fixed exchange rates, but severe fluctuations of exchange rates may disrupt internal stability—the prime goal of domestic monetary policy. It must be emphasized "that the problem is always one of adjustment of external-internal trade; so that any compromise mechanism must always operate within the limits which each imposes on the other."³ Opponents of the system of stable exchange rates, that is, the system in which the burden of adjustment rests almost entirely on the harmonious reaction of internal commodity prices and incomes, wish to replace it by a system in which the foreign exchange rates fluctuate without limitations thus "solving" the apparent conflict between the objectives of

¹ C. R. Whittlesey, *International Monetary Issues*, p. 33.

² H. D. Henderson in: *The Problem of Monetary Stabilization*, p. 160.

³ J. H. Williams, "The adequacy of existing currency mechanisms under varying circumstances," *American Economic Review*, *loc. cit.*, p. 159.

domestic and international monetary stability by simply giving up the latter. They overlook the fact that that domestic stability would not be achieved either since freely fluctuating exchange rates "call for constant shifts of domestic factors of production between export and home-market industries, shifts which may be disturbing and wasteful."⁴

(2) It always takes at least two currencies to complete an international trade transaction, and fluctuating exchange rates constitute, therefore, an additional risk for at least one of the parties involved. This argument cannot be brushed aside with the remark that other (domestic) transactions are risky too and that we do not make any special efforts "to safeguard the man who deals in particular commodities, the trader in wheat, the manufacturer of tires or the farmer who grows peanuts."⁵ First of all, the foreign trader is also a dealer in a particular commodity so that the exchange risk is superimposed upon the regular risk connected with the operation. Secondly, it must not be forgotten that exchange rate fluctuations, like a change in the domestic purchasing power of money, influence the economy on a much broader basis than changes in any particular price. The change of a rate which instantaneously influences the prices of all internationally traded goods cannot be compared with individual price changes within a country. We must remember that the alternative to variations of exchange rates is a change in price levels. If we are opposed to dangerously deflationary adjustments under the operation of the gold standard, we must be equally willing to acknowledge the widespread repercussions of a change in the exchange rate.

As long as exchange rate variations are kept within reasonably narrow margins, they are harmless because of the fact that the foreign trader can hedge against the risk involved.

⁴ Ragnar Nurkse, *Conditions of International Monetary Equilibrium*, Essays in International Finance, No. 4, Princeton University, Spring 1945, p. 3.

⁵ Whittlesey, *International Monetary Issues*, p. 77.

The exchange risk connected with existing contracts can be covered adequately in the forward exchange market, where future claims on foreign money are exchanged at today's exchange rate (plus a certain premium or minus a certain discount), the risk being transferred to exchange dealers and speculators. But it may well be "that the price so paid for this forward covering is so high that the trader can as well run the exchange risk himself."⁶ The forward exchange market, furthermore, offers no protection against losses from anticipated contracts. Possible variations of exchange rates of, say, 10 per cent may, therefore, greatly reduce investments in international trade and in industries producing goods for foreign markets, and reduce therewith the international division of labor.

(3) If currencies were free to move, "there would be a tendency for capital to flee from any currency that was expected to depreciate materially."⁷ The particularly dangerous feature of these capital flight movements is that "such anticipations are apt to bring about their own realization. Anticipatory purchases of foreign exchange tend to produce or at any rate to hasten the anticipated fall in the exchange value of the national currency, and the actual fall will set up or strengthen expectations of a further fall. The dangers of such cumulative and self-aggravating movements under a regime of freely fluctuating exchanges are clearly demonstrated by the French experience of 1922-26. Exchange rates in such circumstances are bound to become highly unstable."⁸

These difficulties cannot be overcome within a system of freely fluctuating exchanges since the appropriate methods for dealing with such a situation constitute, by definition, violations of the freedom for which it stands; exchange control

⁶ A. A. van Sandick in: *The Problem of Monetary Stabilization*, p. 303f.

⁷ Whittlesey, *International Monetary Issues*, p. 118.

⁸ Ragnar Nurkse, *International Currency Experience*, p. 118.

abolishes the freedom to buy and sell on the foreign exchange market, and exchange stabilization funds influence exchange rates through buying and selling operations on the part of the government.

(4) Connected with these capital flight movements which are likely to prevail with freely fluctuating exchange rates is an abnormally high liquidity preference. "The gains and losses which can be made from the unexpected depreciation of one currency or another have come to be realized more and more widely. People therefore try to invest their money in as liquid a form as possible, in order to be able to convert it at the first sign of danger into some other currency which appears at the moment to offer greater security."⁹ This desire for liquidity leads, therefore, to hoarding and, through the hoarding of gold in particular, to credit contraction, to higher rates of interest, to shrinking investment and to unemployment—another proof that it is impossible to insulate the domestic economy against the effects of fluctuating exchange rates.

(5) It is rather generally believed that exchange rate fluctuations would seriously impede the process of long-term foreign investment.¹⁰ Even though international loans are customarily expressed in the currency of the lending country, stability of the debtor country's currency seems highly desirable: from the creditor's standpoint, because he will consider the investment more secure; from the debtor's standpoint, because a depreciating exchange rate would increase the country's debt burden in terms of its own currency.

These arguments may be overstated, however. Against them it has been said:¹¹

(a) That foreign loans are expressed in terms of creditor

⁹ Gottfried von Haberler, *The Theory of International Trade*, p. 45.

¹⁰ See, e.g., Arthur D. Gayer, *Monetary Policy and Economic Stabilization*, p. 191; E. M. Bernstein, *Money and the Economic System*, Chapel Hill, University of North Carolina Press, 1935, p. 464f.

¹¹ C. R. Whittlesey, *International Monetary Issues*, pp. 154-170.

currencies and that a depreciation of the creditor currency does not directly harm the investor in foreign securities since he is not worse off than if he had invested in domestic securities.

(b) That the depreciation of the debtor country's currency need not be quite as dangerous as it appears. The country may be paying its debts chiefly through export of goods whose prices are predominantly determined in foreign markets and, therefore, are not substantially affected by monetary policies in the country of origin. Although the country's foreign debt is increased in terms of its depreciated currency, the proceeds from its exports are similarly increased in terms of its own currency. (This argument, however, fails to distinguish between the individual debtor and the country as a whole. The firm owing the foreign debts may not be an exporter and therefore would not be helped by the higher proceeds from exports.)

(c) That the danger of severe strain upon the exchange rate and the currency system would be reduced to the extent that equity investments replace bond investments since equity investments constitute a more adjustable item in the balance of payments.

Authors who have not denied the detrimental effects of fluctuating exchange rates upon international lending have, none the less, pointed out that the damage might be less serious than expected since it is doubtful whether international capital movements should be made too easy and inviting at a time when the international movements of goods, *in which capita movements alone can materialize*, are seriously obstructed. These authors, however, argue on the basis of periodically adjustable exchange rates rather than freely fluctuating exchange rates, or they propose merely a widening of the gold points.¹²

¹² See J. M. Keynes, *A Treatise on Money*, Vol. 2, p. 324; H. D. Henderson in: *The Problem of Monetary Stabilization*, p. 164; J. H. Williams, "The adequacy of existing currency mechanisms," *American Economic Review*, *loc. cit.*, p. 156.

(6) Freely fluctuating exchange rates are often blamed for the introduction of exchange controls and other restrictionist devices. More dangerous in this respect are, however, incorrectly chosen exchange rates (undervaluation, overvaluation) since they change a country's competitive position. Undervaluation presupposes that the monetary authority is willing to buy the excess supply of foreign exchange at its artificially high price. It is overvaluation rather than freely fluctuating exchange rates which leads to exchange control.¹³

2. THE BALANCE OF PAYMENTS THEORY .

The theory of freely fluctuating exchange rates implies that the price of foreign money in terms of domestic money is determined by the uninhibited forces of demand and supply on the foreign exchange market. These forces, in turn, are determined by various items in the balance of international payments. But care must be taken not to fall into the error of assuming that the items of the balance of payments are predetermined and fixed quantities when, in fact, they are themselves partly dependent on the rates of exchange.

It is an elementary mistake to establish a one-sided causal relationship, assuming that the balance of payments is subject to factors which are independent of the rate of exchange or the monetary policy. According to this naive theory the sequence is completely reversed so that, for instance, inflation is regarded as a result of balance of payments disequilibrium.

During the German inflation of the early twenties a prominent German writer gave this as the chain of causes and effects:¹⁴ First came the foreign exchange depreciation of the German currency by the overburdening of Germany with

¹³ "It is sometimes forgotten that a world of gold currencies fixed to gold at false parities is a form of monetary chaos much worse confounded than a world of freely fluctuating exchanges." *The Economist*, London, September 14, 1935, p. 507.

¹⁴ Karl Helfferich, *Money*, London, E. Benn, 1927, p. 601.

reparation payments. Then followed a rise in price of all imported commodities. This led to a general rise in prices and wages, which in turn resulted in a greater demand for currency and an increase in the note issue. It was, according to this view, not inflation but exchange depreciation which was the primary cause of the general rise in prices.

This presentation of what was called the "balance of payments theory of foreign exchange rates" reverses the actual causal sequence. One of its chief tenets is that a great "need" of imports will result in currency depreciation. It fails to take into account the fact that even the most urgent desire for foreign goods would not lead to imports if they could not be paid for. The "cause" of all the price movements during those years in Germany was the persistent increase of the quantity of money and its velocity of circulation. Without inflation the German exchange rate could not have fallen indefinitely. If the creation of money had been stopped, prices would have ceased rising, and a further fall of the German exchange rate would have increased exports and decreased imports until a new equilibrium resulted.

There seems to be one point of actually observed fact in favor of this harrow version of the balance of payments theory: the fall of the German exchange rate often preceded the rise of the domestic price level. This, however, can easily be explained by the purpose for which the money was primarily created. The German budget was heavily unbalanced, partly because of reparation payments, and the deficit was financed by newly created money. For the reparation payments, but still more for the payments for imports necessary owing to the disruption of the German economy resulting from World War I, a large part of the newly created money was immediately spent in the foreign exchange market. Furthermore, a continuation of the inflation was generally anticipated and expected to depress the internal value of the currency; the internal depreciation was discounted to a certain degree in

the current exchange rates. For this reason, a currency which is being rapidly inflated may be quoted in the foreign exchange markets considerably below the purchasing power parity computed from the domestic prices ruling at the moment.¹⁵

3. THE EQUILIBRIUM RATE OF EXCHANGE

Since the nations are not willing to subscribe either to rigid gold parities or to freely fluctuating exchange rates, a compromise is clearly indicated: Exchange rates which are held as stable as is possible without undue strain will be changed, through depreciation or appreciation, whenever a fundamental disequilibrium in the balance of payments has to be corrected. The desired degree of exchange stability is to be achieved through buying and selling operations by the monetary authorities on the foreign exchange markets and not through restrictions of current transactions. Exchange control may possibly be employed to eliminate disequilibrating capital flight movements. Current transactions, however, must on principle be kept free. The monetary authorities should merely influence—not control—the market. To be able to sell foreign exchange in pursuance of its stabilizing policy, the monetary authority must have at its disposal adequate reserves of foreign exchange or gold.

The compromise solution suggested above implies that the exchange rates which are kept stable must be near-equilibrium rates, rates at which balance of payments equilibrium can be maintained over longer periods, that is, averaging one period with another so that what is lost out of reserves in one period can be confidently expected to flow back during the next. The equilibrium rate of exchange has been defined as "the rate which, over a certain period, maintains the balance of

¹⁵ See Gustav Cassel, *Post-War Monetary Stabilization*, New York, Columbia University Press, 1928, p. 25f.

payments in equilibrium without any net change in the international currency reserve."¹⁶

Chapter 12 has shown that rigidly stable exchange rates could always be had at the price of deflation and unemployment in the gold-losing country. In other words, international payments equilibrium would be achieved at the expense of domestic economic prosperity. The equilibrium rate which a country should try to stabilize is, therefore, better characterized "as one that maintains the balance of payments equilibrium without a degree of unemployment greater than in the outside world."¹⁷

This equilibrium rate could also be specified as the rate which is "neutral" because it would not create artificial export advantages or disadvantages. At the equilibrium rate the currency in question would not be under- or over-valued.

Thus the equilibrium rate would have to conform to the following criteria:

(1) The rate should be compatible with an average degree of domestic stabilization. Unemployment worse than in other countries might indicate a mistaken attempt to stabilize a rate which is not or is no longer the equilibrium rate.

(2) To maintain the rate over a sufficient period of time should not require exhaustion of the country's reserves of foreign balances and gold, nor drastic credit contraction which would conflict with criterion (1).

(3) The rate should not constitute a competitive under-valuation, but should conform in a completely neutral manner with the price, cost, and demand relationships of the countries whose price systems it connects. The rate must not afford artificial advantages or disadvantages in international competition.

Once it could be ascertained that an exchange rate does

¹⁶ Ragnar Nurkse, *International Currency Experience*, p. 124.

¹⁷ Ragnar Nurkse, *International Currency Experience*, p. 126; *Conditions of International Monetary Equilibrium*, p. 6.

not, or does no longer, conform to all three criteria, a new rate would have to be chosen. This new rate would then be maintained until it too would have to be discarded in accordance with the same criteria.

This compromise between rigid and freely fluctuating exchange rates is often referred to as a system of "flexible" exchange rates. The adjective "flexible" is meant to indicate that the system is manageable, adjustable to changing conditions and, therefore, that it is less likely than a rigid system to break under strain. Since freely fluctuating rates are also flexible it might, however, be better to refer to the system as one of "managed flexibility."¹⁸

The most important difficulty of such a system consists in the translation into practical guideposts for monetary policy of such elusive terms as "equilibrium rate," "fundamental disequilibrium," "over- and undervaluation," and "competitive exchange depreciation."

How is the equilibrium rate to be found? How is it to be ascertained after long periods of exchange control during which the continuity of the pricing process is completely interrupted on the foreign exchange market?

At the first glance, the following seems to be an obvious solution: where the exchange rate had been held stable through purchases and sales by the monetary authority in the foreign exchange market, the monetary authority could simply refrain for a time from any interference. Under adverse balance of payments conditions the price of foreign exchange expressed in domestic currency would rise (the foreign ex-

¹⁸ "Stability of exchange rates is not, however, identical with rigidly fixed rates that cannot be changed under any circumstances. The difference between stability and rigidity in exchange rates is the difference between strength and brittleness. It is the difference between an orderly adjustment, if conditions warrant it, and eventual breakdown and painful adjustment." H. D. White, "The Monetary Fund: some criticisms examined," *Foreign Affairs*, January 1945.

change value of the domestic money would fall) and would find, so it could be supposed, after some fluctuations, a new level. This technique is not advisable, however. The "transitional" fluctuations may invite capital flight movements and the speculative forces of the foreign exchange market could easily make true their own pessimistic anticipations. Under these conditions a "self-adjustment" of the exchange rate would not be able to establish a new balance of payments equilibrium, and no new equilibrium rate of exchange would emerge.

The trial and error technique, the policy of letting market forces decide where the new rate should be established, may be more attractive to a creditor country which finds itself momentarily in grave disequilibrium on current account. The depreciation of the creditor currency would induce debtors to rid themselves of their obligations at the more favorable rate, assuming that the debts are expressed in the creditor's currency. The debtors' increased demand for the depreciated currency would cushion the currency's fall. As a matter of fact, the currency may be pushed temporarily *above* the long-run equilibrium point.

In general, a temporary return to the system of freely fluctuating exchange rates cannot be regarded as a practicable way of finding the equilibrium rate. Times which call for a search for better adjusted rates, because the old rates are badly out of line, are hardly times in which one can rely on the equilibrating forces of freely fluctuating exchanges.

4. THE PURCHASING POWER PARITY THEORY

If it is inadvisable to determine the equilibrium rate of exchange through the free interplay of market forces, can the equilibrium rate be computed on the basis of relative price levels? The purchasing power parity theory teaches "that exchange rates should normally reflect the relation between the internal purchasing powers of the various national currency

units¹⁹ It may seem, therefore, that it should be possible to compute the right exchange rates once we have index numbers which express the domestic purchasing power of the currencies in question

Unfortunately, this is not so The chief proponent of the theory has pointed out that "it is only when we know the exchange rate which represents a certain equilibrium that we can calculate the rate which represents the same equilibrium at an altered value of the monetary units of the two countries"²⁰ In other words, the purchasing power parity theory "cannot be applied to absolute levels of prices, but only to changes in the price levels"²¹ The reason is that "differences in the two countries' economic situation, particularly in regard to transport and customs, may cause the normal exchange rate to deviate to a certain extent from the quotient of the currencies' intrinsic purchasing powers"²² We cannot possibly know beforehand how transport costs, tariffs and other protectionist policies, the urgency and elasticity of reciprocal demand, capital movements and other factors will

¹⁹ Barrett Whale, *International Trade*, London, Thornton Butterworth Ltd, 1934, p 46

²⁰ Gustav Cassel, *Money and Foreign Exchange After 1914*, p 142 That the theory is much older than Cassel's restatement is shown in J W Angell's *Theory of International Prices*, Cambridge, Harvard University Press, 1926 The famous Bullion Report stated in 1810 "In the event of the prices of commodities being raised in one country by an augmentation of its circulating medium, while no similar augmentation in the circulating medium of the neighbouring country has led to a similar rise in prices, the currencies of the two countries will no longer continue to bear the same relative value to each other as before The exchange will be computed between these two countries to the disadvantage of the former" The purchasing power parity theory as formulated by the late Professor Cassel was devised primarily to explain the connection between inflationary price changes and the fluctuations of the foreign exchange rates during the stormy period 1914-1923

²¹ Haberler, *The Theory of International Trade*, p 35

²² Cassel, *Money and Foreign Exchange After 1914*, p 139

influence demand and supply conditions on the foreign exchange markets. A computation of equilibrium rates of exchange merely on the basis of general price levels would, therefore, be out of the question even if the mentioning of price levels were a more satisfactory answer than our discussion in chapter 8 suggested.

But even the more modest proposal to adjust the exchange rates to changes in price levels on the basis of index numbers is faulty. In search for satisfactory equilibrium rates as a basis of computation we should have to go back to pre-1914 gold parities, as, indeed, was suggested²³ after World War I. Pre-1914 exchange rates, however, belong to a period so utterly different from post-World War I, to say nothing of post-World War II, conditions in the world economy that we cannot possibly assume that the relative strength of the many factors determining demand and supply on the foreign exchange market remain the same. It must be emphasized that the "calculation of the purchasing power parity rests strictly on the proviso that the rise in prices in the countries concerned has affected all commodities in a like degree."²⁴ The assumption of unchanged price relationships within all countries cannot be made.²⁵ The whole stipulation would become absurd if reference is still made to the equilibrium rates of the pre-1914 period—and these we should still have to use as the "base" for the calculation since no rate after 1914 could claim to be an equilibrium rate.

In chapter 11 it has been shown that there is no reason to believe that changes in the factors which determine supply and demand on the foreign exchange markets and changes in domestic price levels are perfectly correlated.

A few examples will illustrate our point.

²³ Cassel, *op. cit.*, p. 142.

²⁴ Cassel, *op. cit.*, p. 154.

²⁵ J. M. Keynes, *Monetary Reform*, New York, Harcourt, Brace & Co., 1924, p. 101f.

(1) The general price level of a country includes all sorts of prices for commodities, some of which are traded internationally and others within national boundaries only. Only internationally traded goods will influence the demand for and the supply of foreign currency and, consequently, the rate of exchange. Commodities which are only domestically traded, on the other hand, have no direct bearing on the exchange value of the currency and their prices may, therefore, fluctuate without affecting directly and immediately the exchange rate. Which goods *are* internationally traded, furthermore, depends on the exchange rate because a rise in the price of foreign currencies would make a hitherto domestic commodity exportable and would remove hitherto imported articles from the list of internationally traded ones.

Confined to internationally traded commodities the purchasing power parity theory becomes an empty truism²⁶ because it is obvious that the national prices of internationally traded goods (adjusted to account for transportation costs, tariffs and other delivery expenses) tend to equality as between different markets when translated into each other at the current exchange rates. A process of equalization through arbitrage takes place so automatically that the national prices of these commodities seem to follow rather than to determine the movements of the exchange rates.

To choose the prices of domestically traded goods for purchasing power parity calculations would be even less satisfactory unless it is assumed "that in the long run the home prices of the goods and services which do not enter into international trade, move in more or less the same proportions as those which do."²⁷ It is wrong to expect the fluctuations of exchange rates' and internal purchasing powers to be exactly or even nearly proportionate. Changes in the relations be-

²⁶ See J. M. Keynes, *Monetary Reform*, p. 101; Barrett Whale, *International Trade*, p. 53.

²⁷ Keynes, *Monetary Reform*, p. 101.

tween exchange rate and internal purchasing power depend in part on the importance of international goods as compared with domestic goods. Where international trade is an important part of the trade of a country, international price changes must strongly influence the internal purchasing power of that country's money. In this case domestic prices and international prices will have a greater tendency to move together than they will have if international trade is a comparatively minor factor in the economic activities of a country. The percentage change of prices of domestic and international commodities is not likely to be the same, even in the long run.

(2) The equilibrium rate of exchange between the monetary units of two countries is affected by every increase or decrease of one country's demand for the other country's products even though the price levels may stay the same. "The purchasing power parity approach, which uses price movements as the main criterion, tends to neglect the important conditions affecting the volume of demand; it treats demand simply as a function of price, leaving out of account the wide shifts in aggregate income and expenditure which occur in the business cycle (as a result of market forces or government policies) and which lead to wide fluctuations in the volume and hence the value of foreign trade even if prices or price relationships remain the same. Especially in times of depression and in the early stages of recovery, the supply of goods and factors of production tends to be highly elastic, so that great changes in effective demand may take place with little or no effect on prices."²⁸

Emphasis on the effect of changes in national income, expenditure, and employment must not lead to the conclusion, however, that the price elasticity of exports and imports is not high as those writers seem to assume who question that "a deficit in the balance of payments can in fact be cured

²⁸ Ragnar Nurkse, *International Currency Experience*, p. 126.

by a change in the exchange rate."²⁹ It is true that under conditions of unemployment the price effects "are swamped by income effects."³⁰ Generalized assumptions concerning the price elasticity of exports and imports are not always feasible, as our discussion in chapter 11 tried to show, and shifts in demand and supply may sometimes be much more important than their elasticities. Nevertheless, the effects of changes in the exchange rate upon the volume of trade must not be understated.

The elasticity of the world's demand for a country's products (and the elasticity of the country's demand for the products of the rest of the world) are difficult to predict. But the respective elasticities of demand and supply in international trade are important factors in the determination of the relative exchange value of the countries' currencies; factors, incidentally, which may also explain deviations of the exchange rates from their purchasing power parities.

(3) One-sided international payments (capital movements, reparations) constitute another strong reason for questioning the usefulness of the purchasing power parity theory. There are two ways by which the necessary export-import adjustments can be achieved. If country *A* borrows from country *B*, country *A* will have at its disposal *B*'s currency with which to buy in *B* or elsewhere. The increased supply of *B*-currency on *A*'s foreign exchange market will lower the exchange value of *B*-money in terms of *A*-money, and thus it will become cheaper for country *A* to buy in country *B*. The change in the exchange rate need not be reflected in changes in the internal price levels. At the stable exchange rates which would prevail under the gold standard the export-import adjustment

²⁹ Alvin H. Hansen, "A brief note on 'fundamental disequilibrium,'" *Review of Economic Statistics*, November 1944, p. 182.

³⁰ Gottfried Haberler, "Some comments on Professor Hansen's note," *Review of Economic Statistics*, November 1944, p. 192.

might have been achieved by a contraction of credit and a fall of prices in *B*. Hence, there would be an unchanged exchange rate in spite of changed purchasing power parities. In both cases the equilibrium exchange rate would not be the same as the purchasing power parity exchange rate.³¹

(4) It is argued that an incorrect exchange rate creates a disequilibrium not so much in the balance of payments as in the internal cost-price structure of the country in question and that the purchasing power parity theory should rather be stated in terms of a "cost-structure parity."³²

Where money wages rise faster than the productivity of labor, unemployment is liable to occur if prices are kept stable in order to satisfy a policy of maintaining stable exchange rates as under the gold standard. There is, then, neither a disequilibrium in the balance of payments nor any deviation from purchasing power parities but the cost-price structure within the country is clearly distorted.

The suggestion to replace the purchasing power parity through a cost-structure parity would be acceptable if the concept of a cost-structure parity were not even more ambiguous and loose than that of a purchasing power parity. A cost-structure parity would be subject to practically all the criticisms brought forward against the purchasing power parity approach. (This is not surprising since costs are, after all, prices.) But in addition the cost structure in monetary

³¹ " . . . there seems to be no *a priori* reason against believing that an equilibrium rate can exist during and indeed specifically for capital movements . . . Where the classical price-specie mechanism operates or where redirection of income expenditure in the lending and borrowing countries achieves the capital transfer without price-level and specie movements, the new terms of trade for the transfer set the *equilibrium* rate during the transfer." H. S. Ellis, "The equilibrium rate of exchange," in *Explorations in Economics*, New York, McGraw-Hill, 1936, p. 27.

³² A. H. Hansen, "A brief note on 'fundamental disequilibrium,'" *Review of Economic Statistics*, *loc. cit.*, p. 182

terms would have to be related to the efficiency of productive services, and the determination of efficiency would be a most formidable task.

Reluctantly we must come to the conclusion that purchasing power (or cost-structure) parities cannot be used to "compute" equilibrium rates or to gauge with precision deviations from international payments equilibrium. Nevertheless, the purchasing power approach may be used with advantage when we are entirely in the dark, as after long periods of exchange control or after violent inflations. Then it is valuable to use it for finding at least the approximate range within which the equilibrium rate should be located.

5. OTHER CRITERIA OF EQUILIBRIUM RATE EXAMINED

Since the equilibrium rate of exchange is supposed to be neutral in terms of artificial export advantages, the question arises whether a country's export and import position would give a clear indication of divergencies of the exchange rate from its equilibrium position. The method may work *ex post facto*. Once we know all the data concerned, we may be able to decide that a particularly favorable export position was due to an undervaluation of the country's currency. But exports and imports are subject to so many influences that only historical perspective would enable us to attribute without proof to one of many possible factors a predominant role. Deviations from the equilibrium rate which are too small to register when the purchasing power parity test is applied could not be detected either by an analysis of the current export-import situation.

A reduction of the foreign exchange (or gold) reserve of a country is an obvious indication of a balance of payments disequilibrium. The loss of foreign balances indicates that the price of foreign money would be higher if the exchange rate were flexible and determined by free market forces; reserves

of foreign balances are used up to bridge a discrepancy which exists between the amount demanded and the amount supplied from private sources at the official exchange rate.

Why not take such an outflow (or inflow) of foreign exchange reserves as an indication for the degree of disequilibrium in international payments? The exchange rate would, then, have to be adjusted whenever the loss or gain in reserves should be considered abnormally large.

This suggestion is less satisfactory than it seems, however. The determination of the amount of foreign exchange reserves (a precondition of the determination of a *change* in reserves) is difficult. Reserves often consist not merely in foreign balances or gold but in habitual credit relations or customary borrowing rights. Credit transactions are so closely connected with commodity movements that they are often "merely the reverse side, the rear aspect, so to speak" of the latter.³³

When discussing the gold standard mechanism we saw that equilibrating short-term capital movements (capital inflow) may be substituted for an outflow of gold. These loans by foreigners "should be regarded as a draft on the recipient country's stock of international reserves. Whether there is an outflow of gold or an inflow of foreign short-term loans, the country's net international liquidity will be reduced. The foreign short-term funds are a liability, can be withdrawn at any moment, and must be treated as a negative gold reserve."³⁴

Supplies of foreign currency resulting from long-term loans obtained from abroad should not be included in a country's normal foreign exchange reserve, though the influx may, at the moment, have an equilibrating effect.³⁵ An exception are so-called stabilization loans since the funds in question are

³³ Fritz Machlup, *International Trade and National Income Multiplier*, p. 131.

³⁴ Ragnar Nurkse, *Conditions of International Monetary Equilibrium*, p. 4.

³⁵ The normal disequilibrating effect of long-term foreign loans may, at the moment, not be felt when the balance of trade of the debtor country is dangerously out of balance.

especially earmarked to serve as foreign currency reserve. Other long-term loans from one country to another usually have a disequilibrating effect on the balance of payments as shown in chapter 11. Since these long-term movements may continue for quite a time, the same equilibrium rate of exchange will not be applicable to periods with and without long-term capital inflow. Suppose, e.g., that a protracted long-term capital movement ceases abruptly. The debtor country will, then, be subject to painful adjustments in its balance of payments since it can no longer count on the supply of foreign exchange out of loans to which its whole economic structure has been geared for so long a time. The creditor country also will face great adjustment problems when the changeover from a "favorable" to an "unfavorable" balance of trade must be accomplished. The situation could be one in which a change of exchange rates (depreciation of the debtor country's currency) might be considered advisable.

But even if abnormal size and abnormal changes of foreign exchange reserves were more easily definable than the above discussion suggests, our difficulties in determining the equilibrium rate of exchange by reference to changes in foreign exchange reserves would not be over.

It is the very purpose of reserves that they be used when they are demanded. The lowering of reserves is, therefore, in itself no reason for alarm. The question is for how long the reserves are supposed to last. The "standard" reserve period, clearly, must be so chosen that the reserves will not be exhausted before the balance of payments situation reverses itself and the reserves of foreign exchange or gold begin to flow back again. If the reserves are in danger of being exhausted without the prospect of a reversal, the exchange rate can no longer be considered as the equilibrium rate.

How long a period should the monetary authority have in mind when it intends to determine what size of international liquidity reserve would be sufficient to meet the largest an-

ticipated drain? It would certainly not be sufficient to consider only the drain connected with seasonal fluctuations; it would be more reasonable to prepare for the possible drains connected with cyclical changes.

If the reserve is ample, the country may with equanimity face a temporary deterioration of its status of international liquidity. With scanty reserves, on the other hand, the country will try to equilibrate its balance of payments within a short period of time through credit contraction—or perhaps import restrictions—or it will have to depreciate its currency on the grounds that the present rate can no longer be considered the equilibrium rate of exchange. Obviously, the availability of adequate reserves of foreign exchange will prove to be a major factor in a policy which tries to stabilize the exchange rates and to prevent all too frequent exchange rate adjustments.

The “adequacy” of foreign liquidity reserves will, of course, depend on the domestic monetary and general economic policies which determine the amplitude of the cyclical changes and on the corresponding fluctuations in other countries during the same period, i.e., the effectiveness of integration of the different national policies through such international payments systems as the gold standard mechanism or the International Monetary Fund. Fluctuations in domestic activity will influence foreign exchange reserves only if they are not accompanied by corresponding changes in the other countries. Not the seasonal or cyclical fluctuations as such are decisive but rather their disproportionate strength and timing.

Again, the problem of adequate exchange reserves cannot be separated from the question of the country's domestic economic policies. If a country is willing to follow policies conducive to international payments equilibrium at stable exchange rates, irrespective of the consequences of these policies for its domestic economic situation, it can nearly always protect its foreign exchange reserves. If this were not so, the gold standard mechanism could not have functioned as it did over

a long period. But in discussing the gold standard mechanism we saw that governments are not likely to follow a policy of rigid exchange rate stabilization if this policy means painful income contraction and mass unemployment. Unemployment has become the most important criterion for domestic disequilibrium. Can it also be used to determine the equilibrium rate of exchange?

Suppose that the foreign exchange reserve remains reasonably high, that no excessive amount of foreign short-term borrowing reduces the country's net international liquidity, but that the country suffers severely from mass unemployment. Should the existing exchange rate be considered as the equilibrium rate?

If we accept unemployment as a criterion for a deviation from the equilibrium rate of exchange, we must immediately qualify our position by emphasizing the fact that not the unemployment situation as such can be decisive but rather the degree of unemployment in relation to conditions in other countries. If mass unemployment *per se* were taken as the criterion, the conclusion would be absurd because "for periods of world wide depressions (for example in 1931) all currencies would have to be considered as overvalued."³⁶ Only if a country were considerably worse off than other countries could one assume that its currency was overvalued. "But even in that case there are weighty objections against permitting depreciation in the absence of a current balance of payments deficit. The main objection is that depreciation will improve the balance of payments of the depreciating country. Therefore, if the starting point is an even balance, depreciation will lead to a gold [or foreign exchange] outflow from other countries which, under the balance-of-payment criterion, would constitute an overvaluation of other currencies."³⁶ Domestic full employment policies may bring about a monetary expan-

³⁶ Gottfried Haberler, "Currency depreciation and the International Monetary Fund," *Review of Economic Statistics*, loc. cit., p. 180.

sion in consequence of which the balance of payments would become unfavorable. Depreciation would, then, be in order if the loss of reserves rather than unemployment is taken as the criterion of exchange rate policy. It would seem to be only a comparatively minor point of timing whether depreciation should precede or follow domestic expansion were it not for the danger of competitive exchange depreciation. Since it is not easy to draw the line correctly, it would be wise to wait until the deficit in the balance of payments resulting from the domestic expansion has actually developed. "As a general rule . . . so long as its liquid international reserves are adequate, a country should be expected to make use of the reserves to meet an actual deficit in its balance of payments before a downward adjustment of its rate can be approved."³⁷

6. CONCLUDING REMARKS

It is not at all astonishing that we should have found it difficult to determine the criteria which are to indicate deviations from the equilibrium rate of exchange. An international payments system which equally wants to avoid the rigidities of the old-fashioned gold standard mechanism and the dangers of freely fluctuating exchange rates, must have as its very pivot the concept of an equilibrium rate of exchange. Here center all the technical difficulties and political conflicts. Whether, or to what degree, freedom of domestic action should have precedence over exchange stability is expressed in the criteria which are chosen in defining the equilibrium rate; the amount of foreign exchange reserves that is to be considered adequate depends on our definition of international payments equilibrium. There is hardly any problem connected with an international payments system of managed flexibility that would not have to be decided according to our basic interpretation of the concept "equilibrium rate."

³⁷ Ragnar Nurkse, *Conditions of International Monetary Equilibrium*, p. 8.

The lack of unambiguous objective criteria is obvious; the concept of the equilibrium rate leaves room for many interpretations, from the demand for nearly complete freedom of domestic action to the complete submission to automatic gold standard rules. Thus, even if certain criteria could be defined more clearly they would still be subject to different interpretations.

In one respect, however, it is actually an advantage that the criteria of international payments equilibrium are not too easily interpreted. "A publicly recognized and recognizable criterion . . . has the disadvantage that it may act as a signal for speculative capital transfers in anticipation of changes in exchange rates."³⁸ Like the introduction of certain types of rationing in wartime, a change of the exchange rates must come as a surprise move. We have already seen that secrecy was one of the main features of the exchange stabilization funds. Speculation was not to know when the resources of the stabilization funds would be brought to bear against it. Similarly, the less predictable for speculation the plan, time, and extent of a contemplated depreciation (or appreciation), the better for the smooth functioning of a system of managed flexibility. Otherwise strict controls of speculative capital movements would become necessary. Thus the very difficulties the analysts have in agreeing on the criteria of international payments equilibrium are helpful to the monetary authority in concealing moves that they plan and wish to keep secret.

The most important conclusion to be drawn from our analysis of the equilibrium rate as the basic problem of a system of managed flexibility is that the system can function only under some sort of conscious co-operation among the monetary authorities of the various nations. With the gold

³⁸ Ragnar Nurkse, *op. cit.*, p. 8.

standard this request was unnecessary because the rules of the game could be applied individually and without formal agreement or, as the advocates of the orthodox gold mechanism love to put it, without any sacrifice of national sovereignty. To say that the gold standard does not require co-operation among the participating nations does not mean to say that the gold standard would not have worked better had the central banks conferred "at frequent intervals to decide whether the general tendency of their individual policies should be towards a relaxation or a tightening of the conditions of credit,"³⁹ as was once proposed. But the gold standard mechanism could work without it and most of its ardent adherers preferred it so.

With freely fluctuating exchange rates an international monetary authority would have no business and no purpose; indeed, not even the national monetary authority would be supposed to interfere on a foreign exchange market on which the rates were to be "freely" fluctuating.

Under a system of managed flexibility a certain amount of co-operation among the national monetary authorities is indispensable. Exchange rate adjustments concern *all* nations. An exchange depreciation undertaken independently by one country may easily turn out to be a competitive exchange depreciation and result in a beggar-my-neighbor policy. Matters of common interest should be decided in general conformity to an international agreement. Exchange depreciations should be permissible only after review by an international authority. The same authority would have to establish a code of international monetary behavior which, while it would leave the desired amount of freedom for international economic policies would nevertheless prevent international monetary warfare. Such warfare would, in the end, not only destroy

³⁹ *Committee on Finance and Industry Report*, Macmillan, p. 132.

multilateral trade but also have most injurious repercussions upon domestic economic activity

The two following chapters will be devoted to an elaboration of this point, chapter 14 will illustrate some of the consequences which we shall have to face if we fail to establish a multilateral payments system, chapter 15 will discuss the system set up by the Bretton Woods Agreements

Chapter 14

PATHOLOGY OF INTERNATIONAL PAYMENTS

1. EXCHANGE CONTROL

By "exchange control" we refer to measures which replace part of the equilibrating functions of the foreign exchange market by regulations alien to the pricing process. The determination of the exchange rate is not left to demand and supply, and the exchange rate loses its equilibrating function as a market price. It therefore becomes necessary for the government to control the demand and supply of foreign exchange or, even more directly, to control exports and imports of commodities, services, and securities.

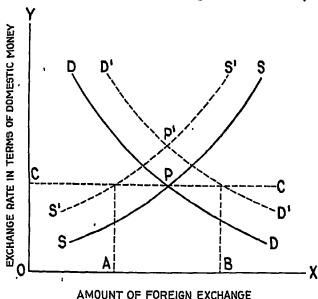
It may be advisable once more to contrast a system of foreign exchange control with the international payments systems discussed in the previous chapters. Freely fluctuating exchange rates are entirely free from government interference. The government does not try to stabilize the exchange rate even over brief periods of time through sales or purchases of foreign exchange. Payments systems which imply the temporary or permanent stabilization of the exchange rate without restricting the free market *confine* the equilibrating function of the exchange rate to that moderate range which is permitted between the gold points and, beyond that, *replace* the equilibrating function of the exchange rate by the mechanism of varying the volume of monetary circulation in the process of sales and purchases of foreign exchange or gold by the monetary authority, the sales being limited by the potential exhaustion of the reserves. The fictitious stabilization through

exchange controls, on the other hand, *eliminates* the equilibrating function of the exchange rate altogether and, in a vicious circle, reinforces the pressures which "justify" the introduction and maintenance of these controls.

If the price for foreign exchange were held *above* the equilibrium rate the monetary authority would find its foreign exchange reserve growing and would want to introduce foreign exchange control only under exceptional circumstances. As a rule, exchange control is used when the price for foreign currency is kept *below* the price to which it would rise on a free market, and when it is found inadvisable or impossible to maintain this artificially low price through sales out of foreign exchange reserves. If the monetary authority neither satisfies the "excess demand" for foreign exchange through sales out of reserves nor allows demand and supply to be equilibrated through a rise of the price, it becomes necessary to restrict the demand by some kind of rationing and to stimulate the supply of foreign exchange through subsidies or confiscatory measures.

Exchange control ordinarily fixes a ceiling price on the foreign exchange market. The ceiling price is substantially lower than a free market price would be under the same circumstances. Suppose that a reduction in supply of foreign exchange (a shift of the supply curve to the left) or an increase in demand (a shift of the demand curve to the right) or a combination of both would establish a new market price for foreign currency in excess of what the monetary authority deems desirable. Now suppose that the government declares the previous equilibrium price to be the official rate at which all transactions have to take place. At this old rate the amount supplied would so badly fall short of the amount demanded that the foreign exchange reserves of the government would soon be exhausted in an attempt to bridge the gap through sales of foreign exchange out of reserves. If the government refuses to permit the increase in the exchange rate (to or near

the intersection of the new demand and supply curves) it will have to try bringing about an artificial "equilibrium" through direct market controls of one sort or another (see Fig. 20). In studying these controls we should always remember that the basic fact of foreign exchange control is usually the



- P' is the new equilibrium rate of exchange
 CC is the official exchange rate
 OA is the amount supplied at price CC
 OB is the amount demanded at price CC
 AB is the gap which requires exchange control

FIG. 20

choice of a ceiling price for foreign currency so low that it cannot be maintained under free market conditions. In other words, the core of the problem of foreign exchange control in most countries is the overvaluation of their currencies.

At first it may seem strange that a country should choose an official exchange rate which constitutes a substantial overvaluation of its currency and, therefore, harms its export po-

sition. Would not, on the contrary, countries rather indulge in competitive exchange depreciation, trying to keep their currencies artificially undervalued? What may cause governments to prefer overvaluation and foreign exchange control?

(1) The monetary authorities may be sceptical about the effectiveness of the normal mechanism of the free exchange market. Facing wild speculation and the flight of capital, they may fear that exchange depreciation might be taken as another alarm sign and add to the motives for the stampede instead of halting it.

(2) The monetary authorities may realize that the commercial banks of the country are confronted with heavy withdrawals by domestic and foreign depositors and other creditors. They prohibit transfers to foreign countries and thereby protect the banks from insolvency.

(3) The monetary authorities are conscious of the fact that they had allowed inflationary forces to develop, which in a free market would either exhaust their reserves or call for depreciation. Knowing that the public, because of a previous experience, might identify the inflation by an open depreciation, they wish to conceal the inflation by avoiding the official exchange depreciation as well as the drain on their reserves.

(4) The monetary authorities anticipate contagious effects of depressions in foreign countries because of shrinking exports and increasing demands on their foreign exchange reserves. They believe that, by avoiding the drain on their reserves, they can insulate the economy against the spread of deflation.

(5) The monetary authorities, committed to a full employment policy through credit expansion, refuse to be hampered by the limitations imposed upon them by the international payments mechanism and the anticipated deterioration of their reserve position. They wish to gain the desired freedom of action by restricting the foreign exchange market.

(6) The monetary authorities may wish to support and supplement a system of domestic price and production controls during war times or transition periods. The regulation of domestic prices might be ineffective without the control of foreign transactions.

(7) The monetary authorities in a centralized planned economy could not possibly permit foreign transactions to be unregulated. Free transactions with foreign countries, were they not automatically excluded through the absence of free private enterprise, would be a disturbing influence upon the central plan.

(8) The monetary authorities face a difficult balance of payments situation, calling for a reduction of imports. To have it brought about through a higher price of foreign currency would imply higher prices of imported articles. They may believe that this will constitute a deterioration of the terms of trade¹ and wish to avoid it by restricting imports through rationing of foreign exchange at the old price.

(9) The monetary authorities permit themselves to be used as instruments of commercial policy. By allocating scarce foreign exchange for the import of particular commodities, from particular countries, or by particular importers, they may grant protection from foreign competition and exercise wide discriminatory powers.

(10) The monetary authorities may have allowed through past regulations and controls the development of a system of well-entrenched vested interests. This system may try to perpetuate and steadily reinforce itself through the granting of special favors, graft, and bureaucratic job-security.

As manifold as the purposes and causes of foreign exchange control are the methods employed. If a sudden withdrawal

¹ Changes in the terms of trade are changes in the relation of export and import prices; for instance, the terms of trade are said to become more favorable if prices of imported goods fall in relation to prices of exported goods.

of foreign credits is the disequilibrating factor, a moratorium may be enough to save the situation. If domestic capital tries to leave the country, legal restrictions (e.g., a prohibitive capital flight tax) may be successful. In practice, however, it has turned out to be difficult to segregate different kinds of international payments, limiting one and allowing complete freedom to the others.

A capital flight movement indicates a critical psychological situation under which the very introduction of foreign exchange control may tend "to upset confidence further, increasing the urge to export capital and making it necessary to tighten the control and to scrutinize even commercial transactions more closely. The process may thus be self-aggravating to some extent."²

Restrictions affecting one class of international transactions are likely to create the need for restrictions concerning other items to prevent evasions and the development of black markets. Obviously exporters must "not be permitted to leave the proceeds of their exports abroad without proving that they do it for good business reasons . . . Under such circumstances the temptation is great not to register the acquisition of foreign exchange at all, particularly since the exporters know better than anybody else that it is almost impossible for the central authority to check on them."³

These difficulties are limited to the case, however, in which only certain categories of transactions are subjected to exchange control. Where the control is complete, where it includes all foreign transactions and where it penalizes offenders with concentration camp and capital punishment, cases of evasion are less frequent.

In a full-fledged exchange control system all receivers of foreign exchange are forced to sell their foreign balances to a

² Ragnar Nurkse, *International Currency Experience*, p. 163.

³ Friedrich A. Lutz, *International Monetary Mechanisms*, Essays in International Finance, No. 1, Princeton University, July 1943, p. 17f.

central office at official prices. All foreign exchange transactions take place through this central office. The office controls demand by arbitrarily allocating the available supply in accordance with one criterion or another.

If exports are permitted only on condition of the surrender of all proceeds in foreign exchange, the danger of evasion is further reduced. Nevertheless, the exchange control system suffers from a constant shortage of foreign exchange which is created by the system's own basic weakness: the overvaluation of the domestic currency. Foreign exchange control impairs the natural stimuli to export in that it keeps the price of foreign currency at an artificially low level. This makes foreign products cheap to importers and domestic products expensive to foreigners. If equilibrating movements of the price of foreign exchange are excluded (and to prohibit them is the very essence of exchange control) the normal import impulse is sometimes partly replaced by artificial inducements. The so-called "additional" export can be achieved by export premiums, which may be financed out of tax revenues or out of profits made in connection with certain practices of exchange control. Owners of "blocked" accounts, for example, who normally are not allowed to convert their money into foreign currency, may be granted the right of transferring their money at a partial loss, the difference between the actual transfer rate and the official exchange rate being used to finance payments of export premiums. A simple method of giving export incentives is for the monetary authority to buy foreign exchange from exporters at a higher price than the official exchange rate—though this approach to the equilibrium rate should perhaps better be regarded as a way of relaxing the exchange control or of gradually abolishing it.

The main problem of exchange control concerns the demand side of the foreign exchange market. There the monetary authority has four major decisions to make: "(1) how much to allot for different *purposes* (commodity imports, debt

service, tourist traffic, etc.); (2) how to distribute the exchange available for imports among different *commodities*; (3) how to ration exchange among different *firms*; and (4) how to distribute the total among different *countries*.⁴

Among the large variety of regulations which have been produced by exchange control authorities in different countries only a few features typical for different systems shall be distinguished.

(1) Exchange control may be so designed that it disturbs international trade as little as possible. This could be achieved only if the monetary authority succeeded in confining exchange restrictions to certain kinds of capital transfer. If exchange control were so perfected that it eliminates hot money movements without interfering with other transactions it would be a valuable instrument of international monetary policy.

(2) When total exchange control becomes unavoidable, the techniques employed may still aim at the greatest possible neutrality in terms of commercial policy. For example, the supply of foreign exchange may be allocated uniformly on a percentage basis, although this freezes the pattern of trade that existed in the base period.

A preferable method of allocation is to grant permission to buy foreign exchange above the official rate. This method, however, is only practicable when the main difficulties on the foreign exchange market are over and a return to the equilibrium rate can be undertaken without too much risk. The method amounts to what has been called a "legalization of the black market."

(3) Concerning the treatment of other countries, exchange control can be so managed that it does not violate the most favored nation principle.⁵ Foreign exchange can be allocated

⁴ Ragnar Nurkse, *International Currency Experience*, p. 173.

⁵ The principle of unconditional most-favored-nation treatment gives the foreign trader of every country with which a trade agreement has been

in such a way that imports from different countries remain at the same percentage ratio at which they stood in a base year, although this means, again, the freezing of a position which may have been only a historical accident.

(4) As pointed out before, the allocation of foreign exchange may become an instrument for the circumvention of existing trade treaties, a weapon admirably suited for discriminatory practices. As such it becomes the very negation of the most favored nation principle.

(5) The central banks (or any other agencies) may conclude bilateral clearing agreements which are designed to replace the multilateral clearing mechanism of the free exchange systems. In a bilateral clearing agreement importers pay domestic money into a fund with the central bank out of which exporters will be paid. Sometimes these arrangements originate with a country which, left without foreign exchange reserves, resorts to international barter as the alternative to strict autarky. Sometimes they have been designed by creditor countries to secure the transfer of interest or amortization payments. If debtor country *A* has an export surplus with creditor country *B*, the creditor country *B* may insist that at least part of *A*'s export surplus should be used for interest payments to *B*. While bilateral agreements may thus be forced upon the debtor, an opposite case may develop in which a country finds it advantageous to buy more than it could sell under the barter arrangements, to accumulate debts and to use its position as a debtor to exert pressure upon the creditor; if country *A* buys more from country *B* than it is able to pay for in kind, it may become advisable for *B* to buy in *A* rather than in another country in order to get payment for its previous deliveries. Once a big country has in this fashion crowded out its competitors in the markets of a smaller country, its position as single buyer and seller may become so strong that

concluded the right not to be treated worse than the trader of any other country.

it may finally even be able to dictate the exchange rate very much in its own favor. This was a common practice in the relationships of Nazi Germany to southeastern European countries.

There is a strong tendency for policies of this sort to reduce international trade to the level where the balances of payments and even the balances of trade between the exchange control country and any single other country are equilibrated. This means that the advantages of multilateral trade are forsaken and that international trade is reduced to the low volume compatible with international barter, i.e., the level of those direct exchanges which can be carried through in the form of bilateral clearing arrangements.⁶

Considering its restrictive effect on international trade, there can be no doubt that foreign exchange control should be avoided, and be considered only as a last resort. We have to admit, however, that foreign exchange control may become a necessity under special circumstances. These special and abnormal circumstances may develop into permanent and normal conditions once internal economic policy assumes more and more the character of co-ordinated measures in a centralized planned economy. Against the ideological background of totalitarian states exchange control may be thought of as the natural outcome of a policy which seeks to limit private actions until they fit into the general production, pricing, and distribution plan of the state.

Seen as part of a planned economy, foreign exchange control cannot be criticized on the grounds that it interferes with those price adjustments on which the international economic relations of free economics are based. The criteria for evaluating the policies of a planned economy are completely different. First of all, such a country may determine its policies

⁶ See H. S. Ellis, *Exchange Control in Central Europe*, Cambridge, Harvard University Press, 1941, p. 323ff.

in utter disregard of their effects upon other countries. It is not impossible that exchange control measures which decrease productivity in terms of the world economy as a whole may be advantageous for the country which introduces it, provided it is politically dominant, the master country, so to speak, of a dominated area. Secondly it is conceivable, once the dominated area has become large enough, that foreign exchange control can be used, as a means among others, to plan the total production program of the dominated area in a manner that need not be inferior in efficiency to the working of international division of labor and co-operation under a free system. At least the master country might be able to reap an extra profit for itself by determining the "barter terms of trade" with the dominated areas entirely in its favor. In its clearing agreements with countries beyond its area of political control, however, the country's success in obtaining favorable barter terms of trade will depend on the respective monopoly or monopsony conditions in the countries concerned.⁷

2. COMPETITIVE EXCHANGE DEPRECIATION

Exchange control usually goes together with overvaluation of the currency but overvaluation need not always be accompanied by exchange control. Whenever the monetary authority intervenes on the foreign exchange market through selling foreign currency (or gold), it tries to keep the price of foreign currency from rising, which may be a symptom of overvaluation of the domestic currency. One should, however, speak of overvaluation only if the fixed market rate is so far below the equilibrium rate of foreign exchange that the

⁷ For interesting material on the working of exchange control policies see J. B. Condliffe, *The Reconstruction of World Trade*, New York, W. W. Norton, 1940; H. S. Ellis, *Exchange Control in Central Europe*; H. Heuser, *Control of International Trade*, Philadelphia, Blakiston, 1939; J. Viner, *Trade Relations between Free-Market and Controlled Economies*, Geneva, League of Nations, 1943.

market rate cannot be maintained without depletion of the country's foreign exchange reserve or without the creation of a disproportionate amount of unemployment. Gold parities, however old and venerable, may at times involve overvaluation; they may have become obsolete. This was not recognized, strangely enough, during the 1920's. "Exchange stabilization was carried out as an act of national sovereignty in one country after another with little or no regard to the resulting interrelationship of currency values in comparison with cost and price levels."⁸

In 1925, e.g., Great Britain went back to the old (pre-1914) sterling-dollar ratio in spite of the fact that prices and costs in England had been inflated substantially more than in the United States, and that the pound sterling was, therefore, overvalued at the old gold parity. This parity could only be maintained if England deflated, or if the United States inflated, or if a combined effort in both countries established a purchasing power parity roughly commensurate with the pre-1914 gold parities. The overvaluation of the pound put England's export industries at an artificial disadvantage at a time when her export trade was already in a most difficult position owing to the disruption of her foreign markets and other structural changes resulting from World War I. Attempts to accomplish cost and price deflation proved unsuccessful. The wage and price structure was too rigid and the whole effort deteriorated into stagnation.

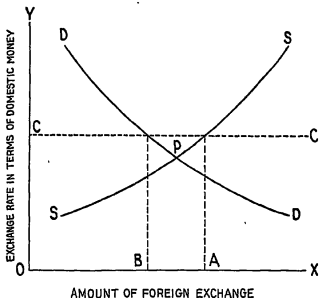
When a country which suffers from overvaluation wants to correct the foreign exchange value of its currency, it has a choice between three types of exchange depreciation: (1) It can let the foreign exchange rate find its own level; (2) it can choose and maintain a new rate as near as possible the equilibrium rate; (3) it can choose and maintain a rate which constitutes an undervaluation of its currency.

Since cases (1) and (2) were discussed in chapter 13, we

⁸ Ragnar Nurkse, *International Currency Experience*, p. 116.

shall now analyse the consequences of the third case, which is commonly known as competitive exchange depreciation.

Competitive exchange depreciation is, like inflation, particularly dangerous because its consequences are initially quite



P is the equilibrium exchange rate

CC is the official price for foreign exchange

OA is the amount supplied at price CC

OB is the amount demanded at price CC

BA is the excess supply of foreign exchange to be taken off the market by monetary authority

FIG. 21

favorable. Overvaluation, on the other hand, like deflation, has effects which are disagreeable from the start. Undervaluation can be easily maintained. It implies that the price of foreign exchange is kept *above* the equilibrium point (i.e., the point of intersection of the demand and supply curves) on the foreign exchange market. At this artificially high price of foreign currency in terms of domestic currency the amount of

foreign exchange supplied exceeds the amount demanded and the gap (between points A and B in Fig. 21) is closed by the monetary authority taking the excess supply off the market, that is, buying it up with domestic currency. This the monetary authority is able to do without limitation since its resources of domestic currency are, at least theoretically, infinite; it can create, if legally so empowered, any amount of domestic currency. The country proceeding with this policy accumulates foreign balances and gold, and causes corresponding depletion of the foreign exchange or gold reserves of other countries. Since a country by undervaluing its currency improves its balance of payments position it can continue to keep its currency undervalued until the disadvantages resulting from international repercussions become too large.

In spite of its monetary advantages, or rather because of them, competitive exchange depreciation must be classified as a most dangerous "beggar-my-neighbor" policy which benefits nobody in the end. Obviously if one country gains an export advantage through artificial reduction of the price of its currency (rendering, as it were, its whole market into a big cut-rate store for foreign buyers), it does so at the expense of other countries, whose currencies are now relatively overvalued and whose exports are consequently reduced. The economic consequences in these countries are not difficult to trace. Since they lose their foreign exchange or gold reserves, they will have to try to reach international payments equilibrium by increasing their exports and reducing their imports. To achieve this they could pursue a policy of deflation, decreasing expenditures, employment and national income, with a fair chance that these depressive tendencies would prove contagious for the country which started to beggar its neighbors. Or they could also turn to competitive depreciation, thus reducing and finally eliminating the initial advantage of the country which initiated the depreciation cycle.

To cut imports down to the level of their reduced exports,

the countries harmed by competitive exchange depreciation are tempted to use cumulative protectionism (particularly in the form of import quotas) and exchange control. Competitive exchange depreciation thus could easily lead to the suppression of competition in the international field.

Our conclusions could be amply illustrated from the monetary experiences of the thirties. Forced off gold through the stagnation which was caused by the overvaluation of the pound, Great Britain embarked then on the opposite policy of competitive exchange depreciation and this policy proved, at first, highly successful from a nationalistic point of view. England had a head start in this process of competitive exchange depreciation and it was not followed for several years by the most important gold standard countries. "Thus England achieved the best of two worlds: (1) an export advantage over competitors, and (2) an improvement of trade through exchange stability with countries complementary to her economy."⁹ These complementary countries were the so-called sterling-bloc countries which simultaneously depreciated their currencies under the leadership of London and kept them stable with the pound sterling.

In the long run, however, competitive exchange depreciation did not pay.¹⁰ France, for example, suffered from overvaluation in relation to the depreciated currencies of the sterling-bloc countries but, unwilling to carry through commensurate deflationary policies, she specialized in the new-fangled protectionist device of import quotas. With an early

⁹ A. H. Hansen, *Fiscal Policy and Business Cycles*, New York, W. W. Norton, 1941, p. 99.

¹⁰ The *Macmillan Report* had predicted: "If, therefore, this country were to cut adrift from the international system with the object of setting up a local standard with a sole regard to our domestic situation, we should be abandoning the larger problem—the solution of which is certainly necessary to a satisfactory solution of the purely domestic problem. . . ." *Committee on Finance and Industry Report*, p. 109.

depreciation of their currencies a probability, the gold-bloc countries suffered, in addition to overvaluation, from capital flight movements and one after another they either depreciated their currencies or introduced increasingly stringent exchange control measures.

3. INCONSISTENT CREDITORS

Under the gold standard a country that was losing gold was compelled to contract credit while, as we have seen before, a gold-receiving country was under no compulsion to expand. Generalizing from this example of a lack of reciprocity of action, we may state that countries whose foreign exchange reserves are endangered ("deficit" countries) are forced into policies designed to equilibrate their balances of payments while countries whose foreign exchange or gold reserves are constantly growing ("surplus" countries) can afford to remain inactive or to follow policies which lead to even greater disequilibrium. Since they are free to act, the responsibility for the expansion and balanced growth of international trade rests primarily with the surplus countries, though the restrictionism of the deficit countries may be more conspicuous. A surplus country should at least shoulder half the adjustment burden in an unbalanced situation and, from the standpoint of its own long-run advantage, it should not force the deficit countries into a position where they will resort to policies which are destructive of international prosperity.

A code for the correct behavior of surplus countries can easily be drawn up in rough outlines. The ideal surplus country would make more of its own currency available to the deficit countries or try to pursue policies leading to a natural decline of the deficit countries' demand for its currency. These policies would satisfy the principle that the "limping balance of payments will be cured by lengthening the short leg, not by shortening the long leg."¹¹

¹¹ *The Economist*, London, January 22, 1944, p. 94.

The ideal surplus country would try, first of all, to step up its imports. This can be accomplished in several ways:

(1) The surplus country could make every possible effort to achieve and maintain a high level of employment and thus to secure large effective demand for commodities produced at home and abroad.

(2) If the surplus country has not yet achieved a high employment level, it has the "moral" obligation to be the leader in an expansionist policy, on which the deficit countries cannot embark alone.

(3) The surplus country could take the lead in relaxing tariffs and other protectionist policies (including the policies of international cartels) and thus encourage additional imports.

(4) The surplus country could appreciate its currency when a persistent and increasing inflow of gold or foreign exchange indicates an undervaluation of its monetary unit.

If these measures are economically or politically impossible of achievement, the surplus country must help to bring about a temporary equilibrium situation through purchases of foreign securities, that is, through the extension of credit to the deficit countries.

To solve the problem of international payments disequilibrium through international loans means, however, to postpone its real and final solution which, on the part of the surplus country, must be achieved in one or more of the ways enumerated above. Foreign loans should, therefore, only be made if the surplus country is completely conscious of the fact that it shall have to receive in the future *even more* foreign payments in the form of an excess of imports over exports of goods and services. The creditor countries are hardly conscious of this necessity when they grant further loans in order to avoid the *immediate* application of policies which would lead to an excess of imports over exports. Nevertheless, as a temporary measure, the extension of loans may be more advisable than the accumulation of gold by the surplus country since the drain on

the deficit countries' reserves would exert a dangerous deflationary pressure throughout the world.

During the inter-war period surplus countries violated every single rule of this code of correct behavior. This can best be illustrated by examples taken from the economic policies of the United States.

(1) The United States economy was subject to such extraordinary fluctuations that the variations in her purchases of foreign goods became one of the main sources of international instability.

(2) The expansionist policies during the thirties were not very successful. Gold was attracted and sterilized, and the drain on the deficit countries' reserves continued.

(3) When the international payments disequilibrium was already excessive for other reasons (1930) import duties were raised in the United States. The restrictionist effects of the high-tariff policy were perhaps minor compared with the contractionist effects of the depression, but it revealed a most astonishing inconsistency or irresponsibility in the behavior of a surplus country, particularly when seen in connection with the sudden cessation of foreign lending at the same time.

(4) Far from following a policy of exchange appreciation, the United States depreciated the dollar during 1933-34, thus doing deliberately what many other nations, including Great Britain, had been compelled to do against their will. Commodity prices in the United States did not rise sufficiently to counteract the depreciation, with the result that the depreciation contributed to the already existing disequilibrium in international payments.

(5) Foreign loans were made in such an erratic manner that they promoted disequilibrium rather than equilibrium. "The mistakes were . . . not so much in our investment policy as in the lack of one."¹² Debtor countries which were

¹² *The United States in the World Economy*, p. 4.

first made "increasingly dependent on an unfailing source of exchange" had this source cut off abruptly at the very time that the sudden decrease of American imports would have called for more, rather than less, lending.¹³

Thus we see that the world's foremost creditor country excelled in a strangely inconsistent combination of policies which, each of them taken separately, were the exact opposite of what should have been expected from a surplus country.

4. THE TRANSFER PROBLEM

A particularly interesting case of (potential) international payments disequilibrium is connected with the transfer of unilateral payments of a more or less abnormal character. Such payments may arise from reparations, accumulated war debts, the un-freezing of foreign short-term balances when exchange restrictions are to be removed, or any other quick withdrawal of substantial amounts of capital.

In chapters 11 and 12 we have studied the mechanism by which unilateral payments can be accomplished. Why should these mechanisms not work in the above-mentioned cases? Does a special transfer problem really exist? This question has been discussed for a long time.¹⁴ One group of theorists is inclined to assume that unilateral payments (of the reparation type) do not represent a new problem and that the transfer from one country to the other and from one currency into the other can be carried through rather easily within the existing international monetary mechanism—provided only that the paying country is able and willing to raise among its nationals the domestic funds for the payments. These writers argue that

¹³ See footnote (6) to chapter 11, p. 144 above.

¹⁴ See Gottfried von Haberler, *The Theory of International Trade*, p. 67. Professor Haberler analyzes Mr. Keynes' and Professor Ohlin's viewpoints in a very illuminating manner. See J. M. Keynes, "The German transfer problem," *Economic Journal*, Vol. 39, 1929; B. Ohlin, "Transfer difficulties real and imagined," *Economic Journal*, Vol. 39, 1929.

the paying country *A* would have to decrease its domestic expenditures. The raising of the necessary sums of domestic money would have a deflationary effect in *A* and would bring about a sufficient increase of *A*'s exports over *A*'s imports. This result would be facilitated if the purchasing power of *B* were simultaneously increased; for example, if reparation money were used in *B* for remission of taxes. *A*'s goods and services, furthermore, would not have to be pressed directly into *B*'s markets. In a multilateral payments system *A*'s goods could be sold anywhere in the world market and the foreign exchange proceeds handed over to *B*.

Another group of theorists is less optimistic and considers it very likely that the paying country would have to lower its prices artificially in order to be able to create the necessary export surplus. The flow of gold from *A* to *B* under the gold standard with deflationary effects in *A* and (perhaps) inflationary effects in *B* would put an extra burden on the paying country, a burden over and above that of raising the domestic funds for the payment. Lower prices in the paying country mean larger amounts of goods and services in terms of a fixed sum of *A*'s money even if the exchange rate is kept stable. Generally speaking the barter terms of trade would become less favorable for the paying, and more favorable for the receiving country.

Some writers believe that the receiving country, *B*, is not to be envied either, for its industries would have to face increasing competition. While *A*'s economy suffers from a dangerous deflationary process, *B*'s government may be under pressure to increase its tariffs to offset *A*'s deflationary efforts. In fact, the inconsistent policy of insisting on unilateral payments which *B* is loath to receive in terms of imports, and which *B* actually shuts out by increasing its tariffs, is a source of grave international difficulties which may have fatal consequences.

A general solution of the transfer problem is impossible. Whether the optimists or the pessimists are right depends en-

tirely on the prevailing circumstances. If the payments are of moderate size (per period of time and in relation to the economic strength of the country) and if the demand for the products of the paying country is rather elastic, it will be comparatively easy to increase exports sufficiently and without much effect upon the barter terms of trade. The employment situation in *A*, the paying country, need not suffer at all since the enforced export activity may conceivably create new employment opportunities. *B*'s business men, complaining about increased competition, take, in effect, the strange attitude that country *A* is rather to be envied—an attitude from which one could logically deduce the absurd conclusion that the victors had better pay reparations to the vanquished.

If one assumes that the required payments are relatively large and that the demand for *A*'s products is not elastic the transfer of the payments may cause serious difficulties. If the demand for *A*'s products is of an elasticity of unity or less than unity, efforts to accomplish the transfer may indeed become intolerable because the attempts to reduce *A*'s prices, even though successful, would not lead to larger, or would even lead to smaller proceeds from exports.

The outcome will depend on the character of the economies of the countries involved, the character of the payments system and the relative size of the payments. A few generalizations, however, are permissible. For it can be shown that under normal multilateral payments conditions the demand for the paying country's products in all probability is quite elastic.

(1) It can be assumed that the world market will be large compared with the exports from one single country. In a multilateral payments system the paying country's exports need not be pressed directly into the markets of the receiving country. Any increase in exports from *A* to the rest of the world will help to solve the problem of unilateral payments from *A* to *B*.

(2) The receiving country's industry does not necessarily

have to face increased competition from abroad for its consumers' dollars. The purchasing power in *B* may have been increased through tax remissions or increased government expenditures. Imports could then be increased without reducing the domestic expenditures on home products. A decrease in *A*'s imports is likely to occur but would have to be borne by the rest of the world rather than by country *B* alone.

(3) The excess of exports over imports in the paying country need not be accomplished solely by an increased sale of those products which have been exported hitherto. New commodities or services may become export articles while a decrease of imports into *A* will also help to widen the gap between exports and imports. The broader the variety of articles involved, the smaller will be the necessary price reductions.

(4) Since the standard of living in the paying country is falling while that of the receiving country is rising, it may be that the identical goods whose consumption is reduced in *A* may be bought in *B* as a result of the change in incomes of *A* and *B*—for example, coffee imported by the two countries from a third country—a shift with relatively few frictions.

Thus it seems that the transfer of unilateral payments of the reparation type could be accomplished without special obstacles, provided that the payments are not excessive and that the international payments system is multilateral and in good working order.

The transfer pessimists are, however, right on the following points:

(1) If the industries of the paying and the receiving countries produce the same commodities and compete with each other in the world market, the transfer of unilateral payments may raise serious complications, economically as well as politically. The economic structures of the economies involved are important factors in the solution of the problem.

(2) The disturbing effects of the payments are the greater,

the more rapidly the export surplus has to be achieved. The rapid enforcement of an export surplus necessitates an artificial deflationary process which may reduce incomes in *A* so drastically as to endanger the raising of the domestic funds for the payment. Unemployment created by deflation may be disastrous for the paying country, much more so than the worsening of the terms of trade.

(3) The problem is made the more difficult, the less country *B* realizes that it must accept the unilateral payments in the form of an excess of its imports over its exports. Increasing tariffs or the introduction of import quotas may aggravate *A*'s difficulties to the breaking point. There is no possible doubt that increasing tariffs in *B* or in other countries buying *A*'s products, increase *A*'s burden by forcing *A*'s prices and wages further down.

(4) Besides the receiving country the paying country and even third countries may be induced to raise trade barriers, thus further complicating the international payments system. Efforts of country *A* to reduce its imports through tariffs and other protectionist devices are less inconsistent than they are in *B*, but the consequences are no less harmful to international trade. When *A* uses the proceeds from its exports to country *C* to pay *B*, *C* in turn, confronted with increased imports from *A* and reduced exports to *A*, may try to reduce its imports. Of course, we can assume that *B* will buy from *C* what *A* could no longer afford to buy, but the commodities demanded by *B* might easily not be the same as those originally demanded by *A*; shifts in production would become necessary and transition difficulties would be created which might easily be serious enough to cause a general spread of protectionism,

No doubt, the transfer problem added to the difficulties of the inter-war period. German reparation payments, war debts. and American loans to Germany were linked in a strange circle. The test came in 1931 and the following years when Germany restricted transfers of repayments of borrowed

dollars. She still attempted for a brief period to achieve an export surplus through her own deflationary efforts, but the consequences of these efforts—depression and unemployment—helped to bring Hitler into power.

Whether the reparation payments were so troublesome because a multilateral payments system did no longer exist, or whether the reparation payments contributed to the destruction of multilateralism is a question which can be argued but not answered. Seen in the perspective of the experiences of the intervening years, one will find that the sums involved were relatively modest and the arguments much exaggerated. But it seems fair to conclude that the international payments system of the future should not be burdened with the transfer of huge sums of money. One of the wisest acts of statesmanship was the introduction of Lend Lease on March 11th, 1941, through which the post-war period was freed from a transfer problem of enormous dimensions.

5. REGIONALISM VERSUS MULTILATERALISM¹⁵

The monetary chaos of the inter-war period will not be permitted to return for any length of time if responsible men are guiding the policies of the major countries. It is not yet certain whether we shall have one universal multilateral clearing system or whether the world will fall apart into several monetary blocs. The next few years will decide whether multilateralism or regionalism will win.

The advantages of multilateral clearing and multilateral trade are well known. Just as money has overcome the clumsiness of barter, so does multilateral clearing free us from the limitations of bilateralism, that is, from the arbitrariness of a system in which every pair of countries struggles to force the transactions between their nationals into an account that must evenly balance.

¹⁵ See also author's *International Monetary Cooperation*, chapter 12: "Key Countries and Monetary Blocs."

Multilateral trade is not an end in itself. If participation in world trade would have to be paid for by a low employment level at home, a country may rather choose economic regionalism. Indeed, "it would be senseless to save labor through international trade only in order to waste labor in unemployment."¹⁶ Full employment and multilateral trade are, however, not mutually exclusive. Quite to the contrary, if all the countries participating in a multilateral scheme achieve a reasonable employment level, the volume of international trade will be high and the temptation for individual countries to insulate themselves through discriminatory practices will be reduced. And, conversely, multilateral trade contributes to rising standards of living and facilitates parallel expansions of incomes with high levels of employment everywhere.

The combination of multilateral trade and "full" employment is ideal provided that the members of a multilateral payments system can trust one another's capacity to maintain a high employment level. This mutual trust, however, is not yet assured, and with the fear of depression in other countries, the multilateral system is often regarded as the carrier of the germ of unemployment.

A multilateral payments system must attempt to integrate the economic policies of the member countries if some degree of exchange rate stability is to be maintained. Depression in one country tends to unbalance the economies of other countries by cutting down the activities of their export industries. This tendency is the more important the larger the economy of the country suffering from depression. If Britain insists on a full employment policy at home and does not believe that the United States has either the intention or the ability to carry through a successful full employment policy, she may decide to band together with other economies which do pledge maintenance of full employment. In other words, England

¹⁶ William H. Beveridge, *Full Employment in a Free Society*, p. 211.

may try to find a solution in the formation of a monetary bloc which would maintain the principles of multilateralism among its members but would be fenced in against other countries or other blocs by stringent exchange control measures. From the British standpoint such a solution would be a second best choice but still preferable to a multilateral system that threatens to break down under the impact of depressions in other member countries. The gain from consistently maintained high employment levels would be greater, it is believed, than the loss from the destruction of world-wide multilateral trade.

A voice from England points out that the British must "examine the less-than-universal, the less-than-fully-multilateral, the less-than-completely-orthodox alternatives."¹⁷ Monetary regionalism, according to this view, is all that England can endeavor to achieve under present conditions. The blocs or regions, however, would have to fulfill three conditions. "The first is that the accounts of each member with the other members of the grouping taken together would have to be substantially balanced, or capable of being brought into balance without undue difficulty. The second is that members of the grouping would have to give assurance that they would co-operate in removing any disequilibria that might appear by increasing their trade. . . . The third is that members would have to give satisfactory assurances that they would, within their borders, avoid large-scale depressions." If these conditions would be observed, "a grouping of this nature would provide a working model of the principles of trade expansion which it would be hoped to extend, when conditions permitted, to the whole world."¹⁸

If the accounts of each member of the grouping with the other members taken together would have to be substantially

¹⁷ *The Economist*, London, January 29, 1944, p. 137.

¹⁸ *The Economist*, London, February 5, 1944, p. 170.

balanced, this condition could only be fulfilled at the expense of giving up real, world-wide multilateralism. In the attempt to achieve the desired clearing *within a given area* the grouping would inadvertently surround itself with a wall of discriminatory devices and it is difficult to see how countries outside the group could possibly interpret such a wall as a sign of friendly collaboration or as construction of a path towards true multilateralism.

Monetary blocs would prove dangerous both internally and in their mutual relations. Blocs may easily mean the domination of the smaller member countries' financial and economic life by the more powerful ones. The exchange control measures practiced towards others may gradually permeate the bloc itself. In its relations with outsiders the monetary bloc would create an atmosphere of isolationism hardly conducive to friendly international relations and certainly not compatible with the philosophy of the Atlantic Charter.

We must admit, on the other hand, that the experiences of the inter-war period justify the fears of the partially planned economies concerning the economic fluctuations in the United States. The full employment problems discussed in Part III gain in importance when we become fully conscious of the fact that the fate of multilateral trade hangs in balance and may be decided by the ability or failure of the United States to maintain a high level of employment.

Chapter 15

THE INTERNATIONAL MONETARY FUND

1 PURPOSES OF THE INTERNATIONAL MONETARY FUND

The lessons of the inter-war period teach, by implication, the essential objectives of an international monetary system. Such a system must be based on international co operation through a permanent institution. The difficulties of the past were often due to short-sighted and selfish makeshift policies, embarked upon in emergencies without regard for the requirements of other nations. The nations acted as if exchange depreciation, the introduction of exchange controls, or the hoarding of gold attracted from abroad, were exclusively their private affairs. Now we have learned that international monetary problems must be solved by mutual agreement because they affect all countries.

The creation of an international monetary institution is the consistent conclusion of the same development which long ago led to the establishment of central banks within national credit systems. The International Monetary Fund¹ will be a bank of central banks, the capstone in the world's monetary system.

¹ The International Monetary Fund as proposed by the Bretton Woods Conference (July, 1944) and formerly signed in Washington (December, 1945) follows suggestions which were first made by the Treasury of the United States in the so called *White Plan* and by experts of the British Treasury in the so called *Keynes Plan*. Both original plans were published in April, 1943. Basis of the Bretton Woods Conference was a *Joint Statement by Experts on the Establishment of an International Monetary Fund* which contained the fundamental principles upon which the monetary experts of the United Nations agreed. It was a compromise of the earlier proposals and followed in its broad outlines the approach which had originally been sug

Certain similarities between the International Monetary Fund and a central bank are apparent. The Fund pools the resources of the central banks of the member countries very much as a central bank pools the cash reserves of commercial banks; and as a central bank attempts to integrate the credit policies of its member banks, so must the Fund attempt to harmonize the monetary and general economic policies of its member countries.

The tasks of the Fund, however, are also in many ways different from those of a central bank. The reserves which are pooled by a central bank consist of one and the same kind of money. The Fund pools monetary reserves of different countries and therefore faces a much more difficult problem. Another difference consists in the fact that a modern central bank can, as a rule, create additional money if member banks should need more cash. This the Fund cannot do. The member countries do not relinquish their monetary sovereignty; they do not vest in the Fund the power to create their own national currencies. Furthermore, the member countries will

gested by Dr. Harry D. White and supplemented by the Canadian experts (*Canadian Plan*). Though the Keynes Plan was not chosen as framework for the proposed international monetary organization, the compromise draft was, nevertheless, quite visibly influenced by Lord Keynes. See *Preliminary Draft Outline of a Proposal for an International Stabilization Fund of the United and Associated Nations*. Revised, July 10, 1943, Washington, D.C. (*White Plan*); *Proposals for an International Clearing Union*, London, H. M. Stationery Office, Cmd. 6437, April 7, 1943, (*Keynes Plan*); *Tentative Draft Proposals of Canadian Experts for an International Exchange Union*, Ottawa, June 9, 1943, (*Canadian Plan*); *Joint Statement by Experts on the Establishment of an International Monetary Fund*, April 21, 1944; *Articles of Agreement. International Monetary Fund and International Bank for Reconstruction and Development*, United Nations Monetary and Financial Conference, Bretton Woods, N.H., July 1 to 22, 1944, Washington, D.C. In connection with the discussions of chapter 15 cf. author's book *International Monetary Cooperation*, Chapel Hill, The University of North Carolina Press, 1945, with appendixes containing the texts of the White Plan, Keynes Plan, Joint Statement, and Bretton Woods Agreement.

insist that they be sole masters of their domestic economic policies. The chances for setting up an international monetary organization would be nil if the Fund were to have dictatorial powers over the economic policies of the members. But if the members' policies cannot be sufficiently integrated to assure exchange stability, maintenance of the multilateral payments system must be secured through *orderly* adjustments of the exchange rates under the rules of an international institution.

The creation of an international monetary organization is just as important for potential "surplus" countries as for potential "deficit" countries among the member states.² Countries which are in need of foreign exchange have a substantial reserve of foreign balances put at their disposal and are not forced to solve their international payments problems through cumulative protectionism, exchange depreciation or exchange restrictions. The surplus countries benefit because they do not have to suffer from the policies into which the deficit countries would be driven without the help of the Fund. Thus potential surplus countries join the Fund in their own self-interest. No country, however rich or strong, can effect multilateral clearing or multilateral trade single-handedly against the will of other nations. Multilateralism requires the co-operation of many nations, creditors and debtors alike. But the debtors will not be able to participate in a multilateral payments system if they are not promised to be helped over temporary emergencies. Failure to set up the Fund would bring about a shrinking of international trade to those modest volumes which can be cleared among the members of a monetary bloc or bartered between the blocs.

² In what follows we shall call a member a "deficit" country when the Fund's holdings of its currency increases above the member's original contribution in its own currency; we shall call a member a "surplus" country when the Fund's holdings of its currency fall below the member's original contribution in its own currency. The meaning of this technical distinction will be explained below.

We are now in a position to understand and appreciate the purposes of the International Monetary Fund, which are (according to Article I of the Fund Agreement):

- “(1) To promote international monetary cooperation through a permanent institution . . .
- (2) To facilitate the expansion and balanced growth of international trade, and to contribute thereby to the promotion and maintenance of high levels of employment . . . of all members . . .
- (3) To promote exchange stability, to maintain orderly exchange arrangements among members, and to avoid competitive exchange depreciation.
- (4) To assist in the establishment of a multilateral system of payments in respect of current transactions between members and in the elimination of foreign exchange restrictions . . .
- (5) To give confidence to members by making the Fund’s resources available to them under adequate safeguards, thus providing them with opportunity to correct maladjustments in their balance of payments without resorting to measures destructive of national or international prosperity.
- (6) In accordance with the above, to shorten the duration and lessen the degree of disequilibrium in the international balances of payments of members.”

2. QUOTAS, SUBSCRIPTIONS, PURCHASING RIGHTS

The resources of the International Monetary Fund consist of member currencies and gold. Each member country subscribes in gold and in its own currency a carefully determined amount, which is called its *quota* (III-1).³ The obligatory

³The numbers refer to the Articles of Agreement: International Monetary Fund.

minimum gold contribution is "the smaller of (i) twenty-five per cent of its quota; or (ii) ten per cent of its net official holdings of gold and United States dollars" at the time when the Fund's operations begin (III-3).

Through these subscriptions the Fund has at its disposal an assortment of member currencies. Gold is the Fund's most liquid asset since for gold any desired member currency can be bought (VII-2-ii). The members may purchase foreign exchange from the Fund; the Fund is a pool of member currencies from which each member can take the currencies of other members if it adds a corresponding amount of its own currency to the pool.

These purchasing rights of the members are, however, strictly limited (V-3). Let us assume that a member's quota is the equivalent of 100 million dollars, of which it has contributed 75 million dollars in its own currency and 25 million dollars in gold. The Fund may then sell to the country a maximum amount of 25 million dollars worth of foreign exchange (i.e., 25 per cent of the member's quota) in each twelve-months period. In this way it would take at least five years to bring the Fund's holdings of the country's currency from the initial 75 per cent up to 200 per cent of its quota (or the equivalent of 200 million dollars in our example). When the Fund's holdings of a member's currency have reached 200 per cent of the member's quota, the member has exhausted its purchasing rights. We see that the country in our example gains, as member of the Fund, the right to purchase 125 million dollars worth of foreign exchange, while it put into the Fund international purchasing power, gold, worth only 25 million dollars. But it must be remembered that these figures indicate the upper limits for the yearly and the total purchasing rights.

As the Fund accumulates currencies of deficit countries it depletes its holdings of the currencies of surplus countries. When the Fund's supply of a currency becomes low, the

Fund may (1) require the member to sell its currency for gold (VII-2-ii); (2) ask the member for a loan ("but no member shall be under any obligation to make such loans to the Fund") (VII-2-i); (3) "formally declare such currency scarce and . . . apportion its existing and accruing supply of the scarce currency with due regard to the relative needs of members. . ." (VII-3-a); (4) authorize "any member, after consultation with the Fund, temporarily to impose limitations on the freedom of exchange operations in the scarce currency" (VII-3-b).

In joining the Fund a potential surplus country faces the following obligations: (1) Its contributions to the Fund (equal to its quota) will be more than just a token of membership; the country ultimately will have to sell commodities and services when its currency is sold by the Fund to other members—who, after all, need it only because they buy goods and services from the surplus country. (2) It agrees to buy gold from the Fund in any desired amount (which means, as under (1), that it will accept gold ultimately in exchange for its commodities and services). (3) It will have to agree to exchange control by the Fund and by other members if its currency is declared scarce and if it is not willing to grant loans to the Fund or to other members. In accepting the scarce-currency-provision, a potential surplus country actually promises "to release other countries from any obligation to take its exports, or, if taken, to pay for them."⁴

In the long run the members of the Fund are not supposed to be invariably either deficit or surplus countries. Members are expected to balance their international payments over longer periods—that is, to have deficit periods followed by surplus periods—so that the Fund's transactions in each member currency tend to cancel out.

Considering the fact that the character of a member as

⁴Lord Keynes before the House of Lords on May 23, 1944. He refers to section VI of the Joint Statement.

either a deficit or surplus country is not generally predictable, the quotas must be so chosen that they determine satisfactorily both the obligations and the purchasing rights of the members. The quota formula used included (aside from political considerations) such factors as "a country's holdings of gold and free foreign exchange, the magnitude and the fluctuations of its balance of international payments, its national income, etc."⁵ The aggregate of quotas of the countries represented at the Bretton Woods Conference amounts to 8.8 billion dollars. This corresponds to an aggregate of about 11 billion dollars for the world as a whole. These figures were chosen because it was believed that according to the fluctuations in international trade during the immediate pre-war years, a Fund of this size could have handled rather comfortably all debit balances on current account in those years.

It is interesting to note that the Keynes Plan had proposed an aggregate of quotas roughly three times as large.⁶ The main explanation for this large discrepancy is probably to be found in the greater leeway which Lord Keynes wanted to secure for the domestic policies of the member countries. The foreign exchange reserve required depends on the promptness or the delay with which balance of payments disequilibria are eliminated and, therefore, is a measure of the willingness or reluctance to subject the domestic economy to influences from the outside.

Another interesting difference between the proposed Keynes Plan and the actual Fund Agreement deserves notice. Instead of making contributions to a common Fund, the members of the Keynesian Clearing Union would have been asked to "agree to accept payment of currency balances, due to them from other members, by transfer of [international bank money called] bancor to their credit in the books of the Clearing

⁵ *White Plan* II-4.

⁶ See *Keynes Plan* II-6-5; Joan Robinson, "The International Currency Proposals," *Economic Journal*, June-September 1943, p. 165.

Union.”⁷ The foreign exchange reserve gained through membership in the Clearing Union would have consisted in the right to accumulate debit balances, up to a line of credit equal to the member’s quota, with the Clearing Union. The Keynes Plan was, admittedly, unsymmetrical in its treatment of deficit and surplus countries. While deficit countries could have drawn bancor checks only up to their respective quotas (and counter-measures would have been called for long before these maxima were reached) no rigid maxima of their obligation to accept these checks were proposed for surplus countries.⁸ For example, if many countries had insisted on buying dollars in order to pay for American products, the United States would have been forced to accumulate a credit balance with the Clearing Union far in excess of its quota.

This expansibility of the balances of surplus countries, which was a feature of the Keynes Plan, would have had the fascinating result that the Clearing Union could never have run out of funds. International bank money (the “bancor”) would have been created whenever a deficit country made use of its “overdraft” privilege.⁹

The International Monetary Fund cannot create money; its resources of member currencies are limited. The rights of the deficit countries to buy the currencies of surplus countries add up to a potential demand greater than the supply of these currencies in the Fund. The Fund, consequently, may be

⁷ *Keynes Plan* II-6-6.

⁸ *Keynes Plan* III-7.

⁹ The overdraft principle is, to follow Lord Keynes’s own description, a British “practice of economising the amount of cash deposits.” Overdraft is “an arrangement with the bank that an account can be in debit at any time up to an amount not exceeding an agreed figure.” The distinction between demand deposits and overdraft facilities is simply that “a customer of a bank may draw a cheque against his deposit, thus diminishing his *credit* with the bank” while he may, equally well, draw a cheque against his overdraft, thus increasing his *debit* with the bank.” See *A Treatise on Money*, New York, Harcourt, Brace and Company, 1930, Vol. I, pp. 41-43.

forced into rationing of "scarce" currencies. This rationing provision is essential unless the Fund is given unrestricted power to borrow scarce currencies—a political impossibility, since no potential surplus country would be willing to sign a blank check giving the rest of the world widest discretion to draw on its resources.

The possible rationing of scarce currencies is, no doubt, one of the least satisfactory features of the Fund, since it actually permits the introduction of the dreaded exchange control—to avoid which is one of the most important purposes of the entire institution. Fortunately the chances are that the rationing of scarce currencies may never become necessary. The Fund's resources are protected against the loss of "surplus" currencies and the accumulation of "deficit" currencies (1) by the repurchase provisions of Article V, and (2) by special provisions which aim at the maintenance by the members of international payments equilibrium in the long run.

3. THE REPURCHASE PROVISIONS

Provided that the members are able to maintain long-run equilibrium in international payments, the liquidity of the Fund is assured through the provision that a member under certain conditions must repurchase its own currency from the Fund with gold or convertible currencies. The complicated provisions of Article V-7 and of Schedule B can be reduced to the following basic principles¹⁰:

The members must be prevented from using the Fund one-sidedly. As the Fund helps a member that finds itself in difficulties, so must the Fund participate in an improvement of the member's balance of payments position. It is not enough that, according to Article V-3, the member desiring to purchase foreign exchange from the Fund has to prove that the

¹⁰ See also the instructive paper "The repurchase provisions of the proposed International Monetary Fund" by W. A. Brown, Jr. in *American Economic Review*, March 1945, pp. 111-120.

purchase is needed for payments which are consistent with the purposes of the Fund. This provision would only prevent misuse of the Fund by members which are actually not in need of help. In addition, it is a necessary provision that a member which bought foreign currency from the Fund when it needed help should later, as the balance of payments situation reverses itself, help the Fund restore its former position by sharing with it the inflow of gold and foreign currencies.

Each member must at the end of each financial year of the Fund repurchase with gold or convertible currencies one-half of any increase that has occurred during the year in the Fund's holdings of its currency, provided that the following special provisions do not apply:

(1) Repurchases are not required (a) when the country's own monetary reserves outside the Fund are below an amount equal to its quota; and (b) when the Fund's holdings of the member's currency are below 75 per cent of its quota.

(2) The amount to be repurchased is reduced by one-half of a decrease in the member's own monetary reserve during the year. Thus, the repurchase rule does not apply at all "when a member's monetary reserves have decreased during the year by more than the Fund's holdings of its currency have increased" (V-7).

(3) The amount to be repurchased is increased by one-half of an increase in the member's reserve (unless the country's own monetary reserve is still below the country's quota).

The application of these rules will lead to the following results: (a) When a country with reserves above its quota buys, say, \$10 million worth of foreign exchange from the Fund during one year but improves its balance of payments position by the same amount during the following year, the Fund is not weakened because the country would have to repurchase \$5 million worth of its own currency (with gold or convertible currencies) at the end of the first year and another \$5 million worth at the end of the second year. (b) When a country is

in a weak position, so that its monetary reserves stay below its quota, the Fund loses, for the time being, "surplus" currencies even though the country may balance its international accounts over a period of sufficient length. The loss of surplus currency is occasioned by the fact that even a subsequent increase in the country's foreign exchange reserves does not lead to a repurchase as long as the reserves remain below the country's quota.

That case (a) will be of greater practical importance than case (b) is evident from the fact that the gold and dollar resources outside the Fund and outside the United States¹¹ are far greater than the aggregate of quotas minus the quota of the United States (to say nothing of the fact that the United States is, of course, not the only surplus country).

The possible loss of surplus currency according to case (b) will be counterbalanced by the working of the following provisions:

(1) According to Art. V-7-a "a member may purchase from the Fund and the Fund shall sell for gold any part of the Fund's holdings of its currency in excess of its quota." The members will use this privilege to reduce the charges on the Fund's holdings of their currencies (V-8).

(2) The repurchases must be carried to the point where the Fund's holdings of a country's currency would be below 75 per cent of the country's quota. Thus a country which, originally, contributed less than 25 per cent in gold or dollars will have to bring its gold (or dollar) contribution up to

¹¹ The American Bankers Association, while criticizing the Fund, unwittingly supported the thesis of the Fund's liquidity by pointing out that, counting the official holdings by central banks and the foreign owned private banking funds, the gold and dollar reserves outside the United States were estimated at about \$20 billion in September 1944. See *Practical International Financial Organization through Amendments to Bretton Woods Proposals*, American Bankers Association, February 1, 1945.

25 per cent when its balance of payments situation improves sufficiently.

(3) An increase in gold production and gold reserves leads to additional repurchases.

(4) All charges according to Art. V-8 are to be paid in gold.

(5) According to Art. V-6 "any member desiring to obtain, directly or indirectly, the currency of another member for gold shall, provided that it can do so with equal advantage, acquire it by sale of gold to the Fund." Even though this provision may not always rid the Fund of "deficit" currencies, it increases the Fund's liquidity since any currency can be bought for gold.

4. PROVISIONS FOR DEFICIT AND SURPLUS COUNTRIES

Persistent deviations from international payments equilibrium must be avoided. The repurchase provisions maintain the liquidity of the Fund only if the members manage to balance their international payments when we average one period with another.

As seen by the Fund, a member is in a position of equilibrium when the Fund holds approximately that amount of a country's currency which the country originally contributed. This is the dividing line between surplus and deficit countries. A country becomes a deficit country when the Fund's holdings of its currency grow over and above the Fund's original holdings. That this should happen is quite in order; the Fund is there to be used in the case of normal balance of payments fluctuations which tend to cancel out over a period of sufficient length.

When the deficit grows the case becomes more problematic, however. In provision V-8 the Fund has a rather sensitive index for the degree of disequilibrium which develops in a country's international payments situation. The Fund will

levy charges "which shall be payable by any member [in gold] on the average daily balances of its currency held by the Fund in excess of its quota." These charges begin at one-half per cent and increase according to the duration of the excess and according to the amount. The amount is divided into four brackets, each bracket equal to 25 per cent of the member's quota. When the charge has reached 4 per cent in any bracket (which will happen much sooner in the higher than the lower brackets) "the Fund and the member shall consider means by which the Fund's holdings of the currency can be reduced."

The accumulation of large deficit balances may indicate that the member uses the resources of the Fund contrary to the Fund's purpose "to shorten the duration and to lessen the degree of disequilibrium in the international balances of payments of members" (I-vi). In this case the member will receive a report "setting forth the views of the Fund" (V-5) even before the charges may have reached the critical level of 4 per cent.

What will the report contain? What are the "means" to be urged upon the member? Since the answer to these questions will obviously depend on the merits of each case, the Fund Agreement does not contain general directives. But we know the theoretical possibilities. A deficit country will either have to increase its exports or decrease its imports. It can try to achieve the desired result through (1) deflation, (2) depreciation, (3) protectionist devices plus subsidies, and (4) exchange control.

That the Fund will recommend restrictionist devices and subsidies is not to be expected, since the Fund has the purpose "to facilitate the expansion and balanced growth of international trade" (I-ii).

Deflation may be the automatic result of purchases from the Fund if the member's central and commercial banks lack "buffer" reserves. It is highly doubtful, however, that a

member will be urged by the Fund to use deflationary credit policies or to acquiesce in automatic reactions *à la* gold outflow. The Fund may suggest that the member keep its credit policy better in line with the policies of the other members. But it seems almost certain that the Fund could not force the member into deflationary steps which the country does not want to adopt.

The Fund may, however, be expected to suggest or even strongly urge exchange depreciation, provided that the Fund comes to the conclusion that the disequilibrium is "fundamental" and that it can be cured by depreciation. If the member requests the right to depreciate, the Fund must be satisfied that the depreciation does not constitute a case of *competitive* depreciation.

Exchange control will be suggested when the cause of the disequilibrium is to be found in a long and sustained outflow of capital. In this case the Fund may even request a member to exercise controls to prevent such use of the resources of the Fund (VI-1).

That the Fund may at its discretion waive the conditions V-3-a which limit the purchasing rights of the members (V-4), together with the menacing "ineligibility to use the Fund's resources" if a member's reply to the Fund's report is unsatisfactory (V-5), may very well induce a member to follow the suggestions of the Fund, even though they may be inopportune in the light of its domestic economic policies.

A member is a surplus country (and, therefore, strictly speaking, in disequilibrium) if the Fund's holdings of its currency fall below the original contribution in that currency. As seen by the Fund, this "surplus" position becomes critical when "a general scarcity of a particular currency is developing." In this case the Fund "may issue a report setting forth the causes of the scarcity and containing recommendations to bring it to an end" (VII-1). Another report is to be issued when the Fund formally declares a currency as scarce (VII-3).

The Fund Agreement makes no suggestions as to the content of these reports but the Keynes Plan¹² recommended for a similar situation (a) measures for the expansion of domestic credit and domestic demand; (b) the appreciation of the country's local currency or, alternatively, the encouragement of an increase in money rates of earnings; (c) the reduction of tariffs and other discouragements to imports; and (d) international development loans. These policies have in common the feature that they would tend to increase the import of commodities and securities. But it would not always be easy to carry them out.

The expansion of domestic credit and domestic demand proved to be rather difficult in the United States during the thirties, when private demand for loanable funds tended to fall short even of the available supply of savings. It is to be hoped, however, that we shall be able to maintain a higher and steadier employment level after the war through policies similar to those discussed in the last chapter of this volume. Once full employment is approached in a surplus country, a further expansion of credit may be undesirable and the international payments disequilibrium—if it should still exist under such favorable conditions—would have to be eliminated by other means than the expansion of credit in the surplus country.

Appreciation of the surplus currency would be rather difficult for political reasons in a country with large gold holdings or a substantial gold production. Nor would it be favored by exporters. But the case for appreciation in surplus countries is theoretically just as good as the case for depreciation in deficit countries. And since the members are more likely to take the initiative regarding depreciation, appreciation would need the support of the Fund's authority much more. If appreciation could help to avoid the rationing of the scarce

¹² *Keynes Plan* II-9.

"surplus" currency, it might not be completely impossible to overcome the surplus country's reluctance.

An increase in money rates of earnings, i.e., a higher wage level, is perhaps not a particularly suitable instrument for the engineering of short-run changes in the balance of payments of the surplus country, but it will have a beneficial effect upon the balance of payments situation in the long run whatever the domestic results of the policy may be.¹³

The reduction of tariffs and other discouragements to imports is very much in line with the Fund's purpose, "to facilitate the expansion and balanced growth of international trade" (I-ii). That tariff reduction is not easily achieved goes without saying. We can confidently hope, however, that the creditor countries will at least not repeat the perverse mistake of raising their tariffs when they insist on unilateral payments from debtor countries. "What is truly incompatible with the objectives of Bretton Woods is a commercial policy placing serious obstacles in the way of the adjustment mechanism."¹⁴

Loans to the Fund, to the International Bank for Reconstruction and Development, or directly to deficit countries, will help to establish a temporary balance of payments equilibrium. But they only postpone the basic problem. Since the other policies discussed are rather time-consuming, the surplus country may be well advised to grant loans in order to avoid the rationing of its currency by the Fund and the other members. The respite so gained should, then, be used by both

¹³ Lord Keynes is optimistic concerning the willingness of the United States to receive payments in the future. Among the reasons for his optimistic attitude he points out that the United States is rapidly becoming a high-living and a high-cost country. And he adds: "These are the historic, classical methods by which in the long run international equilibrium will be restored." Speech on the Anglo-American Agreement before the House of Lords on December 18, 1945.

¹⁴ William Fellner, "The commercial policy implications of the Fund and the Bank," *American Economic Review*, May 1945, p. 268.

the surplus and the deficit countries to achieve long-run equilibrium.

5. EXCHANGE RATES AND EXCHANGE CONTROL

The Agreement, while committed to the promotion of exchange stability (I-iii), permits adjustments of exchange rates, particularly when they are necessary to correct fundamental disequilibria (IV-5-a). Exchange depreciation is an extraordinary and rare measure which is either very narrowly limited or dependent on the special permission of the Fund.

The Agreement leaves the initial determination of the par values to the members. But since the par values in the early post-war period are the highly artificial product of exchange control, it is necessary that they should not be rigidly maintained at all costs. Over- and under-valuations must be avoided. If a member wants to adjust its rate, it may do so (after consulting the Fund) provided the proposed change, inclusive of any previous change since the establishment of the Fund, does not exceed 10 per cent (IV-5-c). Further changes require the permission of the Fund, but the Fund's decision must be given within three days if the member so requests and if the additional change does not exceed another 10 per cent (IV-5-c).

The Fund shall concur in a proposed change "if it is satisfied that the change is necessary to correct a fundamental disequilibrium. In particular, provided it is so satisfied, it shall not object to the proposed change because of the domestic social and political policies of the member proposing the change" (IV-5-f).

Since the Fund permits unilateral depreciation only within very narrow limits, condemns sharply competitive exchange depreciation, and makes, consequently, exchange depreciation normally dependent on its permission, we may say that the Fund substitutes for the gold standard's exchange rigidity the

principle of managed flexibility in the adjustment of exchange values of the member currencies

The advantages of such a system are as follows

(1) Only a system of managed flexibility allows that amount of freedom for domestic economic policies to the members which is the *conditio sine qua non* if all countries are to be brought into the fold of the multilateral payments system

The designers of the Fund took it for granted that full employment policies will rank higher than rigid exchange rates in the scale of preferences of the members

(2) Exchange rate flexibility permits freedom in the domestic field without necessitating dangerously large quotas—quotas which would give perhaps enough leeway for deficit countries but would constitute too great an obligation for the surplus countries. Furthermore, credit expansion in deficit countries plus exchange rigidity would force the surplus countries either into the granting of additional loans or into even stronger credit expansion. Only variations of the exchange rates can insulate the members against undesired repercussions of the domestic economic policies of other members

(3) As seen by the deficit countries, exchange depreciation may be preferable to deflation, increasing protectionism, or exchange control

(4) While the Fund permits changes in the par values of member currencies, it makes these changes (when above 10 per cent) dependent on the approval of the Fund and excludes, therefore, competitive exchange depreciation

(5) A system which permits flexibility through controlled adjustments is indispensable for the change-over from a world bristling with exchange controls to a world with multilateral international trade

How difficult it will be to determine a state of "fundamental disequilibrium" or the degree of a given overvaluation was

shown in chapter 13. The difficulties of the Fund, furthermore, will not only be of a theoretical nature. Professor Viner, for instance, believes that it will be a rather formidable task to substitute group management for unilateral action since "majority consent to the depreciation of a major currency would scarcely ever be obtainable from an international body."¹⁵ Professor Viner seems to be too pessimistic, however. We must not forget that the Fund would never permit competitive exchange depreciation. If watchfulness of other members prevents the establishment of an unjustified competitive advantage, international monetary co-operation fulfills its function. The elimination of a proven state of overvaluation is another matter. And since any member may find itself in such a position at some future date, the members may not be unwilling, on principle, to grant reasonable requests for depreciation.

It is one of the purposes of the Fund to assist "in the elimination of foreign exchange restrictions" (I-iv). Nevertheless, the Fund uses or permits exchange restrictions in the following three cases:

(1) In case of a large or sustained outflow of capital "the Fund may request a member to exercise controls" (VI-1) "but no member may exercise these controls in a manner which will restrict payments for current transactions or which will unduly delay transfers of funds in settlement of commitments" (VI-3).

(2) Exchange restrictions may become necessary, as we have already seen, when the Fund formally declares a currency as "scarce."

(3) During the transition period "members may . . . maintain and adapt to changing circumstances . . . restrictions on payments and transfers for current international

¹⁵ Jacob Viner, "Two plans for international monetary stabilization," *Yale Review*, Autumn 1943, p. 94.

transactions" but "as soon as conditions permit, they shall take all possible measures to develop such commercial and financial arrangements with other members as will facilitate international payments and the maintenance of exchange stability. In particular, members shall withdraw restrictions maintained or imposed under this Section as soon as they are satisfied that they will be able, in the absence of such restrictions, to settle their balance of payments in a manner which will not unduly encumber their access to the resources of the Fund" (XIV-2).

6. THE FUND AND GOLD

In the two preceding paragraphs we saw that the Fund tries to induce both deficit and surplus countries to maintain a reasonable degree of international payments equilibrium or, when this should prove impossible, to adjust their exchange rates in an orderly manner. The gold standard system did not know these problems. Conscious international monetary management was absent, the pattern of exchange rates was rigidly set, and the necessary integration of the economic policies of the gold standard countries was supposed to be accomplished automatically through reciprocal inflation and deflation. It seems, therefore, that Lord Keynes is basically right when he calls the Fund proposal "the exact opposite of the gold standard."¹⁶

Professor Williams, on the other hand, considered the new currency proposals (White Plan and Keynes Plan) from the very beginning as "essentially gold standard plans."¹⁷ And if we follow the transactions of members with the Fund we can, indeed, see that, other things remaining equal, a deficit country is in a position similar to that of a gold-losing country, and a surplus country in a position similar to that of a gold-

¹⁶ House of Lords, May 23, 1944.

¹⁷ John H. Williams, "Currency stabilization: the Keynes and White Plans," *Foreign Affairs*, July 1943, pp. 649-50.

receiving country. Let us see what happens when a member buys from the Fund.

A member deals with the Fund "only through its Treasury, central bank, stabilization fund or other similar fiscal agency" (V-1). It would be a mistake to picture the Fund as an enormous organization through which all international payments would be cleared. Quite to the contrary, the overwhelming amount of international payments is cleared without the help of the Fund through the foreign exchange market and its agencies. Transactions with the Fund are of an exceptional nature, very much like gold- or short-term capital movements under the gold standard.

Suppose the Banque de France wants to buy dollars from the Fund because of a temporary dollar shortage on the French foreign exchange market. The Banque de France will be permitted to draw against the Fund's dollar account with the Federal Reserve Bank of New York. The Fund's dollar account will go down and the purchase price will be credited to the Fund's franc account with the Banque de France. The French central bank has acquired the dollars to sell them to commercial banks which, in turn, sell them to their customers. This process will reduce the commercial banks' demand deposits and their reserve with the central bank by an equal amount and, since the commercial banks have to hold only a fractional reserve, their reserve position is weakened. Unless the commercial banks have excess reserves at their disposal or unless the central bank wants to make additional reserves available, the transaction with the Fund would clearly have a contractionist effect on the French economy.

The opposite would be true for the United States. The dollars bought by France would be received in payment for exports and would increase both the deposits and the reserves of commercial banks in the United States, thus improving the banks' reserve position and enabling them to expand credit.

Transactions with the Fund affect, as we see, "bank reserves in precisely the same manner as the movements of gold under the gold standard."¹⁸ But, as in the case of the gold standard, there is, of course, no compelling reason to assume that credit expansion would actually take place. Furthermore, it is now, in contradistinction to the gold standard, quite unlikely that the member countries will accept the deflationary consequences of their transactions with the Fund. None of the provisions of the Fund Agreement suggests deflationary policies on the part of the deficit countries. Rather, it appears almost certain that the Fund was designed to obliterate this part of the gold mechanism or to let it operate only under control.

The members of the Fund do not have to adopt the gold standard but they can adopt it if they desire to do so. A member merely has to express the par value of its currency in terms of gold as a common denominator (IV-1) and to promise not to buy gold at a price above par value plus the prescribed margin, or to sell gold at a price below par value minus the prescribed margin (IV-2).

Gold is a more "respectable" *tertium comparationis* than a newly invented unit such as "bancor." That gold has "intrinsic" value may be a rather childish argument. But as long as a strong popular prejudice in favor of gold exists, the Fund is psychologically strengthened through its many connections with gold. Particularly the establishment of a permanent market in gold—the Fund's standing offer to buy gold at official parities—is indispensable to induce gold producing countries or countries with large gold reserves to join the Fund.

The Fund's gold provisions are not just window-dressing. Gold plays a really important role as the Fund's most liquid asset and as a common anchorage for the member currencies,

¹⁸ John H. Williams, *ibid.*, p. 649.

7. CRITICISMS AND SUMMARY

The critics of the Fund can be divided into two groups. The first group opposes the Fund as too conservative. These critics are not at all sure that strict multilateralism is compatible with the solution of their internal economic problems. They are reluctant to remove exchange controls because they want to retain the right to protect themselves "against the contagion of depression."¹⁹

If this attitude is deplorable, it is at least consistent. If we want to do away with multilateral clearing, we can form regional blocks and withdraw behind the Schachtian armor of exchange control. But it would be unwise to hope for a final merger of these regional blocks unless a strong international payments organization is created right now "whilst the active spirit of united action still persists."²⁰

Critics of the Fund who considered even the Keynesian scheme as too conservative²¹ fail to see that potential surplus

¹⁹ William H. Beveridge, *Full Employment in a Free Society*, New York, W. W. Norton, 1945, p. 34.

²⁰ *Keynes Plan X-41*. Hope for the final emergence of a strictly multilateral or "omnilateral" system was expressed in *The Economist*, February 5, 1944, p. 170. The so-called "key-countries" approach suffers from a similar inconsistency. Professor Williams doubts whether it is wise "to attempt to deal both with the problems of the transition period from war to peace and with longer-run currency stabilization under a single plan" and suggests, therefore, a more gradual stabilization scheme "beginning with the dollar sterling rate and tying in, as circumstances warrant, the other currencies significant for international trade" (*Foreign Affairs*, January 1944, p. 234). The weakness of this approach is that it would have accepted membership of individual countries only after they have regained economic equilibrium. The countries most in need of help would have been forced to accept membership in regional monetary blocs whose final merger in a multilateral system would have been doubtful.

²¹ See, e.g., *New Plans for International Trade*, Supplement No. 5, Bulletin Vol. 5, Institute of Statistics, Oxford, August 7, 1943 (with articles by Basil Blackwell, E. F. Schumacher and M. Kalecki). Kalecki and Schumacher

countries could not have endorsed a plan for the creation of international bank money in which the deficit countries would have controlled credit expansion in the surplus countries. Creditor countries insist on the right to their own domestic credit policy just as much as deficit countries. As the latter refuse to adopt the gold mechanism to protect themselves against deflation and unemployment, so the surplus countries want to protect themselves against inflation.

The second group of critics prefers the gold standard mechanism to the Fund Agreement. They believe that, instead of creating an international monetary organization, the different countries should put their own houses in order, balance their budgets, and stabilize the internal value of their currencies. Exchange stability would then follow automatically and without sacrifice of national sovereignty.

These critics have the right aim (*viz.*, strictest multilateralism) but they are unaware that their means are inadequate. If we want multilateral clearing we have to secure the willingness on the part of other countries to desist from discriminatory policies, and desist they will not if we insist on the old gold standard mechanism of reciprocal inflation and deflation. The gold mechanism worked in a world of expanding capitalist economies. That world has ceased to exist. We betray a dangerous lack of political realism if we base our opposition to the Fund on the fear that "on the board of any such body there will be representatives of some countries which do not have the same understanding and appreciation of private enterprise that we do."²² Should the Russians, on the same grounds, withhold their participation until they have made

suggest adoption of the Keynes Plan but abandonment of the concept of quotas. In other words, the deficit countries would be permitted to use their overdraft privileges without limit. The authors admit, however, that this would not be practical because it might invite abuse.

²² *Practical International Financial Organization through Amendments to Bretton Woods Proposals*, American Bankers Association, February 1, 1945, p. 17.

sure that we, in turn, understand and appreciate the working of a centrally planned economy? This is hardly the right spirit in which to approach the problems of international economic co-operation at a time when countries with entirely different social-economic systems have to be brought together.

If we blame the Fund because it grants purchasing rights regardless of the credit-worthiness of the members, we miss "the whole spirit and purpose of the Fund"²³ and make the mistake of comparing the Fund with a commercial rather than a central bank. The Fund has as its very purpose helping members because they are temporarily weak and can join an international payments system only with the aid of the stronger members.

That the Fund is not a perfect document goes without saying. The very nature of a compromise implies that nobody is fully satisfied. Where mutual concessions have been made there remain areas of doubt as to the exact terms on which the dispute was settled. A potential surplus country may feel uneasy about the rationing of scarce currencies; the exchange control provisions suffer from the basic difficulty of separating "current" transactions from the rest of international payments; the term "fundamental disequilibrium" is difficult to interpret and may be a source of future disagreement; and, last but not least, the Fund can only try to influence the domestic economic policies of its members but it has no power to control them. If the Fund does not succeed in harmonizing the diverging economic policies of its members, it will not be able to maintain rigidly stable exchange rates. As fundamental disequilibria develop, the Fund must try to adjust the pattern of exchange rates. This adjustment will give to the international payments system the necessary elasticity and will prevent breakdowns.

²³ Alvin H. Hansen, *America's Role in the World Economy*, New York, W. W. Norton, 1945, p. 74.

The perfect system with stable exchange rates and with full employment in the member countries may develop as we learn to integrate the domestic economic policies of the member countries—the art of international central banking.

The International Monetary Fund reconciles diverging interests and theories through a combination of the following policies:

(1) The Fund puts adequate reserves of foreign exchange at the disposal of its members. These reserves enable deficit countries to balance their international payments without “resorting to measures destructive of national or international prosperity.”

(2) The Fund induces both deficit countries and surplus countries to re-establish international payments equilibrium. The responsibility does not rest exclusively on deficit countries as was so often the case under the gold mechanism.

(3) The Fund does not undertake to control the domestic economic policies of its members and it takes for granted that full employment will rank higher than fixed exchange rates in the scale of preferences of many members.

(4) The Fund promotes exchange stability but does not insist on rigid parities. If the members’ divergent economic policies lead to “fundamental” disequilibria the pattern of exchange rates is to be adjusted.

(5) The Fund considers exchange depreciation generally more advisable than deflation but makes major changes in the par values of member currencies dependent on its approval. Competitive exchange depreciation is not permitted.

(6) The Fund protects the surplus countries against undesired credit expansion. The Fund does not create international bank money. The members’ contributions are fixed, their obligations limited. Additional loans to the Fund or to other members may be requested but cannot be enforced.

(7) The Fund may ration scarce currencies. But the scarcity is not created by the Fund. On the contrary, the

Fund increases the supply of foreign exchange and substitutes an equitable distribution for unilateral exchange control.

(8) The Fund tends to eliminate exchange controls but it permits its members to maintain restrictions during the transition period and as a weapon against capital flight movements.

(9) The Fund uses gold as a common denominator for the member currencies and as an asset of highest international liquidity. But the operations of the Fund are not a replica of the gold mechanism nor do the members have to adopt the gold standard.

(10) The Fund attempts to achieve the maximum amount of integration of the credit policies of its members and, therefore, the maximum amount of exchange stability which is obtainable without coercion. But it adopts the principle of flexible exchanges where rigidity would lead to a complete breakdown of multilateral clearing.

8. THE INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

The International Bank for Reconstruction and Development²⁴ has the purpose of facilitating and promoting long-term foreign investment. The Fund cannot fulfill this task since long-term loans would make the Fund illiquid. But many members of the Fund will need long-term loans so badly that they might be tempted to use the facilities of the Fund for investment purposes unless long-term capital is made available to them on reasonable terms.

The International Bank does not want to replace private investments abroad; rather, its purpose is "to promote private

²⁴ See *Articles of Agreement, International Monetary Fund and International Bank for Reconstruction and Development*, United Nations Monetary and Financial Conference, Bretton Woods, N. H., July 1-22, 1944, Washington, D. C. The Articles quoted in this section refer to the Bank, not to the Fund. Several passages of this section are taken from chapter 13 of author's *International Monetary Cooperation*.

foreign investment by means of guarantees or participations in loans and other investments made by private investors; and when private capital is not available on reasonable terms, to supplement private investment by providing, on suitable conditions, finance for productive purposes out of its own capital, funds raised by it and its other resources" (I-ii).

In chapter 14 (sections 3 and 4) we have seen that private international borrowing and lending was not handled well between the wars. Foreign funds were often borrowed in excessive amounts for purposes of dubious productivity, at unreasonable conditions and without sufficient recognition of the transfer problem. The lending countries lacked a co-ordinated lending policy, discontinued their foreign investments when it was most inopportune for the borrowers and, through their protectionist policies, made it often difficult for debtor countries to meet their obligations.

These experiences teach that we cannot always rely on the wisdom of individual private lenders and borrowers. Private capital movements need co-ordination and, in times of transition or depression, encouragement. The International Bank is admirably suited to fulfill this double function of co-ordination and encouragement. It can survey the financial and international trade situation of a borrowing country in its entirety and, by comparing it with the situation in other countries, help to steer the flow of loanable funds in the right direction. It is one of the purposes of the Bank "to arrange the loans made or guaranteed by it in relation to international loans through other channels so that the more useful and urgent projects, large and small alike, will be dealt with first" (I-iv). This is particularly important during the immediate post-war period, a time of urgent demand for foreign capital when private funds will be reluctant to venture abroad.

The members' subscriptions to the Bank are in several respects similar to the quotas of the Fund. They determine the relative share of the members in the administration of the

Bank and limit their obligations. But they do not limit the amount of loans which a member can arrange with or through the Bank.

A member has to pay into the Bank only 20 per cent of its subscription (18 per cent in its own currency and 2 per cent in gold or United States dollars), because the Bank needs loanable funds only when it makes loans or participates in loans. Its main function is to act as a guarantor of private loans placed through the normal investment channels. For this function as a guarantor no funds are required. It is enough that the Bank has the right to call in the required amounts when needed in cases of default. If the Bank wants to make loans in excess of the paid-in capital, it may, with the approval of a member, sell its own securities in that member's capital market and use the funds so acquired. All activities of the Bank taken together (loans made and loans guaranteed) are, however, strictly limited to "one hundred per cent of the unimpaired subscribed capital, reserves and surplus of the Bank" (III-3). If all nations represented in Bretton Woods joined the Bank, the total subscribed capital would amount to \$9,100 million.

All guarantees and loans are subject to the following conditions(III-4):

(i) "When the member in whose territories the project is located is not itself the borrower, the member or the central bank or some comparable agency of the member which is acceptable to the Bank, fully guarantees the repayment of the principal and the payment of interest and other charges on the loan."

(ii) "The Bank is satisfied that in the prevailing market conditions the borrower would be unable otherwise to obtain the loan under conditions which in the opinion of the Bank are reasonable for the borrower."

(iii) "A competent committee, as provided for in Article V,

Section 7, has submitted a written report recommending the project after a careful study of the merits of the proposal."

(iv) "In the opinion of the Bank the rate of interest and other charges are reasonable and such rate, charges and the schedule for repayment of principal are appropriate to the project."

(v) "In making or guaranteeing a loan, the Bank shall pay due regard to the prospects that the borrower, and, if the borrower is not a member, that the guarantor, will be in position to meet its obligations under the loan; and the Bank shall act prudently in the interests both of the particular member in whose territories the project is located and of the members as a whole."

(vi) "In guaranteeing a loan made by other investors, the Bank receives suitable compensation for its risk."

(vii) "Loans made or guaranteed by the Bank shall, except in special circumstances, be for the purpose of specific projects of reconstruction or development."

As a companion agency to the Fund, the Bank is based entirely on the principle of multilateral clearing and multilateral trade. The loans made or guaranteed must not be "tied" loans (as, for instance, the loans made or guaranteed by the Export-Import Bank of Washington). Art. III-5 provides that "the Bank shall impose no conditions that the proceeds of a loan shall be spent in the territories of any particular member or members." Thus the Bank enables a country to borrow in the most favorable capital market and to spend the borrowed funds for imports of any kind from anywhere. The character of the project and the member's additional imports are not directly connected.

If a member finds itself in a condition of "acute exchange stringency" and cannot transfer the payments to which it is committed, it can apply for a relaxation of the conditions of payment. The Bank may then decide to accept service pay-

ments in the currency of the member and arrange for the repurchase of such currency at a later date, or it may extend the life of the loan. Where the Bank is only a guarantor it may offer to purchase the loan and then arrange for the above mentioned relaxations.

The Bank has met with nearly unanimous approval. But the question has been asked "How many loans are there likely to be which are safe enough to meet the Bank's standards and yet not safe enough to float on their own merits?"²⁵ During the transition period the Bank will find a very broad field for its activities. In more normal times it may have a stabilizing effect on the world economy. Private investment depends on profit anticipations and profit anticipations fluctuate with the business cycle. During periods of depression private capital may not be available for foreign investments without the guarantee of the Bank. The Bank's activities may, therefore, increase when private investment tends to fall off both at home and abroad, thus causing a beneficial counter-cycle effect which would contribute towards more stable employment conditions throughout the world.

²⁵ *The Economist*, London, July 29, 1944.

PART III

Money, Investment, and Employment

Chapter 16

WAITING AND THE PERIOD OF PRODUCTION

1 THE PROBLEM OF CREDIT

The problems of money, credit, and capital are closely interrelated. In regulating the quantity of *money*, the monetary authority manages the terms of *credit*, mainly by influencing short- and long-term rates of interest, and the rates of interest, in turn, together with the anticipated rates of profit determine the volume of investment, that is, the volume of the production of *capital goods*. Money and capital are not identical, however, and there is hardly a mistake more dangerous in economic policy than that of confusing the two concepts, because money as a medium of exchange is no more capital than the wire is electric current.

The overlapping problems of money and capital have not, until very recently, received the scientific attention they deserve. The theory of capital has been treated mainly as part of the general theory of prices, centering on the explanation of the relative scarcity of capital as a factor of production. The difficulty was, as Professor Myrdal has pointed out, that prices, as explained in static economic theory, refer to a point of time, thus making it impossible to introduce time contracts in monetary units, that is, credit contracts, into the theory of prices. This was the main reason why credit problems became the special province of monetary theory. Monetary theory, however, tended to stand apart from the general theory of prices because of the emphasis which it placed on explaining the *general* level of prices. Monetary theory, in its isolation,

did not contribute very much to the problem of relative prices where interest plays an important role as a cost factor. Professor Myrdal comes to the conclusion that "the problem of credit necessitates a monetary theory which, differently from the quantity theory, is really integrated with the central economic theory."¹

In his foreword to Professor Hayek's *Prices and Production*, Professor Robbins² makes the additional point that this compartmentalizing of monetary theory precludes an explanation of trade depression. Monetary theory, he says, must be joined with the analysis of the pure theory of capital in order to explain those "changes in the 'real' structure of production which are the most characteristic feature of trade fluctuations."

Wicksell showed for the first time in his *Geldzins und Güterpreise*³ how the gap between monetary theory and general economic theory could be bridged by means of the two concepts of the natural and the market rate of interest. He distinguished carefully the monetary source of the supply of credit from the "normal" supply of savings, with the intention of proving that the slightest divergence of the market rate from the natural or real rate of interest would cause a "cumulative process," inflationary or deflationary in character, which was bound to disturb the economic process very seriously as long as such divergence continued. This cumulative process arises from changes in the quantity and velocity of circulation of money. The market rate of interest can be kept below the

¹ Gunnar Myrdal, "Der Gleichgewichtsbegriff als Instrument der geldtheoretischen Analyse," in *Beiträge zur Geldtheorie*, ed. by F. A. Hayek, p. 375; see also G. Myrdal, *Monetary Equilibrium*; B. Ohlin, "Some notes on the Stockholm theory of savings and investment," *Economic Journal*, Vol. 47, 1937, p. 232.

² F. A. Hayek, *Prices and Production*, p. vii.

³ Knut Wicksell, *Geldzins und Güterpreise*, Jena, Gustav Fischer, 1898; English translation, *Interest and Prices*, London, Macmillan, 1936.

natural rate (which equates the demand for loanable funds and the supply of savings) only when the supply of loanable funds is constantly supplemented by credit creation or dishoarding.⁴

Members of the Austrian⁵—as well as of the Swedish⁶—School have further developed and clarified the Wicksellian thesis, and D H Robertson⁷ followed similar lines of thought independently in England. Another approach by J M Keynes⁸ and his followers arrives at results partly similar to those of the aforementioned economists.⁹ When writing his *Treatise on Money*, Mr Keynes was, as he later pointed out, "still moving along the traditional lines of regarding the influence of money as something, so to speak, separate from the general theory of supply and demand." Subsequently he developed a *General Theory of Employment, Interest and Money*¹⁰ in which the supply of and the demand for money in terms of liquidity preference are held to play a decisive part in the determination of the rate of interest, and in which the rate of interest and the anticipated rate of profit are two determinants of the volume of employment and the national income. Changes in the supply of and the demand for money are, thus, not only factors determining the general level of prices, but factors which determine, among others, the total volume of output.

⁴ For a fuller discussion of Wicksell's theory see chapter 17, section 5.

⁵ See L. von Mises, *The Theory of Money and Credit*, New York, Harcourt, Brace & Co., 1935, G. von Haberler, *Prosperity and Depression*, I. A. Hayek, *Monetary Theory and the Trade Cycle*, Prices and Production, F. Machlup, *The Stock Market Credit and Capital Formation*.

⁶ See especially Ohlin's "Some notes on the Stockholm theory of savings and investment," *Economic Journal*, Vol. 47, 1937, p. 69.

⁷ D. H. Robertson, *Banking Policy and the Price Level*, London, P. S. King & Son, 1926, "Saving and Hoarding," *Economic Journal*, Vol. 43, 1933.

⁸ J. M. Keynes, *The General Theory of Employment, Interest and Money*.

⁹ See the discussion between Ohlin, Robertson, Hawtrey, and Keynes in *Economic Journal*, Vol. 47, 1937.

¹⁰ J. M. Keynes, *op. cit.*, p. vi.

Formerly a neglected problem, the interrelation of money, credit, and capital has become the main field of modern economic discussion—a discussion which, although already complicated by the very nature of the problem, has suffered considerably from the fact that the different writers have often been preoccupied with words and methods, so that it is not easy to decide wherein their differences are material or only of a purely terminological nature.¹¹

In what follows emphasis will be placed on what appears to be the common ground of the participants in the controversy. Having already discussed at some length the present status of modern monetary theory, it seems advisable first to restate some fundamental aspects of the theories of capital, interest, and credit as they appear if approached, as it were, from the capital side of the problem.

2. FIXED CAPITAL AND WORKING CAPITAL

Capital is one of the most controversial concepts of economic theory. The controversy can be greatly reduced, however, if we notice that the different theories refer partly to different phenomena which, taken together, constitute the ramified problem of "capital." A great deal of confusion can be avoided by assigning special names to the various manifestations of the problem.

The terms "capital goods" and "produced means of production" were used by Böhm-Bawerk¹² to designate "the materials' and instruments of production provided that they are the product of labor." Thus he excluded from the capital category other factors of production (labor and land) and goods ready for immediate final consumption.

¹¹ See D. H. Robertson's delightful "Survey of modern monetary controversy," in *Essays in Monetary Theory*.

¹² E. von Böhm-Bawerk, "Kapital," *Handwörterbuch der Staatswissenschaften*, Jena, Gustav Fischer, 1923, Vol. 5, p. 578.

Capital goods are usually divided into two groups according to the following characteristics:

Fixed capital is mainly represented by the durable instruments of production. These instruments are repeatedly used during several periods of production; their services are given up gradually until the instruments are no longer fit to be used; thus their loss of value is gradual, taking the form of depreciation and obsolescence.

Working capital (or circulating capital) consists of materials and goods in process in the different stages of extraction, fabrication, transportation, and marketing. They are used only once and enter with their full value into the product.¹³

To illustrate these definitions we may use Robertson's¹⁴ neat example of the sausage machine. The sausage machine itself clearly represents a fixed capital good, while the meat, passing through the machine, is certainly of the character of circulating or working capital. It should be noticed, however, that the sausage machine was once the end-product of a similar process of production in which the machine shop played the role of fixed capital and different metals that of working capital, the product having been a fixed capital good and not a consumers' good. The sausages, on the other hand, when they leave the sausage machine, are physically a consumers' good, but they retain their character as capital goods (working capital) while they pass through the stages of packing and transporting and become, finally, "stocks of goods awaiting sale."

There is not much use in trying to press all the complicated cases of real life into these categories. Sometimes it will depend on rather elusive distinctions (e.g., on the intentions of the

¹³ See the definitions by Böhm-Bawerk, "Kapital," *loc. cit.*, p. 579; R. G. Hawtrey, *Capital and Employment*, London, Longmans, Green & Co., 1937, pp. 12-13; J. M. Keynes, *A Treatise on Money*, Vol. I, p. 128; N. G. Pierson, *Principles of Economics*, Vol. 1, p. 179.

¹⁴ D. H. Robertson, *Money*, p. 112.

user) whether a particular good has to be included in the category of capital goods and whether it has to be called working capital or fixed capital. Durable consumers' goods have to be included in the category of capital goods or many purposes of our analysis.

3. THE TRUTH BEHIND THE WAITING THEORY

An economic analysis which penetrates to the very elements of production might seem incapable of counting the real capital goods as an *elementary* factor of production. Being by definition physically the product of labor, these capital goods can be broken down, theoretically, into the elementary factors which were used in producing them. Then there would seem to be no possibility of explaining interest as the price paid for the services of factors of production of elementary scarcity. Capital goods can be reproduced at any time in larger quantities by means of further applications of human effort in combination with other capital goods and natural resources. Therefore, except in the short run, the scarcity ascribable to capital goods appears to be actually derived from the scarcity of the labor and land from which they are produced. Any scarcity other than this is logically inconceivable should it be true that any desired quantity of capital goods could always be manufactured at any time with the help of the available labor and material.

But, as a matter of fact, it is very easy to ascribe an elementary scarcity to "capital" which is perfectly sufficient to account for the phenomenon that competition among producers does *not* press the prices of the products down to the cost of labor and land; there is constantly left a "gap" between these costs and the prices of the finished goods. Under normal conditions, and in the absence of monopolistic profits, this gap varies more or less with the amount of the "capital" used, thus indicating an entity capable of producing value and

somehow connected with what is commonly called "capital" and what is visible in the form of capital goods.

Since economic value can exist only under the condition of scarcity and utility of an object, something has to be found to which utility and scarcity can be attributed in a specific way—i.e., independently of the labor and land used in procuring the capital goods—in order to account for this gap.

Now, there is no denying the fact that the efficiency of already known processes of production may be increased and opportunities afforded for the use of a number of new processes if labor and land are used first in producing capital goods and are then supported by these capital goods in producing consumers' goods. "Round-about production" helps to satisfy human wants better and more plentifully as compared with a more direct production of consumers' goods.¹⁶

This increase in productivity alone, however, cannot explain the aforementioned gap between prices of finished products and costs of land and labor which always appears when these roundabout processes are embarked upon. To explain this phenomenon of value we have to show that the roundabout processes of production are somehow limited—that it is not possible to extend without limit the use of these processes even though they are technically possible and would help to increase the supply of consumers' goods.

Assuming full employment it is not difficult to find the reason for this element of scarcity in the use of the roundabout method of production. Roundabout ways of production are *time-consuming*. Although the ultimate output of consumers'

¹⁶ "That roundabout methods lead to greater results than direct methods is one of the most important and fundamental propositions in the whole theory of production. It must be emphatically stated that the only basis of this proposition is the experience of practical life. Economic theory does not and cannot show *a priori* that it must be so; but the unanimous experience of all the technique of production says that it is so." Böhm-Bawerk, *The Positive Theory of Capital*, New York, G. E. Stechert & Co., 1930, p. 20.

goods may be much greater as compared with that resulting from a more direct method of production, this increase in production does not occur until later. For the present an amount of consumption that might be enjoyed must be foregone in order to make possible the production of the capital goods, the employment of which is to increase the productivity of labor.¹⁶

Insofar as labor and material are first devoted to the manufacture of machines, plant, and so forth, a period of time must elapse before this use can result in the satisfaction of demands for final consumption goods. The satisfaction of wants must be *waited for* and, in every economic order, the possible extent of waiting is limited because people simply must have a minimum amount of present consumers' goods before they can use their labor and material for the manufacture of capital goods. If (still assuming full employment) the proportion of the limited quantity of available labor and materials which is devoted to the production of capital goods is increased, the output of consumers' goods will have to be restricted for the time being. But the output of consumers' goods cannot be restricted any farther than immediate needs permit. Even the controlling authorities of a socialistic economy might hesitate to devote many more laborers to the production of producers' goods than does the capitalistic economy. They would have to provide for current consumption needs before going forward with increased production for the satisfaction of future needs. Consequently, the lower the level of consumption in the present, the harder it is to restrict consumption.

The so-called waiting theory as stated above can hardly be a subject of controversy. "When the rate of investment is pressing against the limit set by available resources and all workers are fully employed, then no further increase in the

¹⁶ D. H. Robertson speaks of methods "which are technically efficient but slow and indirect." *Banking Policy and the Price Level*, p. 41-42.

rate of investment can take place unless consumption declines. . . .¹⁷ When the waiting theory has been criticised, it has been because of a mistaken notion that the theory implies that interest is the price paid for "waiting," while waiting is interpreted as a personal sacrifice. Many formulations of the waiting theory are really not quite free from this moral flavor which they inherited from the old theory of abstinence. Rather than look for another expression,¹⁸ however, we prefer to stress once and for all the fact that *interest is not the price paid for waiting*.¹⁹ "Waiting" is nothing but an explanation of the impossibility of investing more than a part of the available factors of production in the production of capital goods.

Professor Schumpeter²⁰ says that he cannot see why we should have to wait for the regular fruits of production, "because the circular flow (of economic life), once established, leaves no gap between outlay or production effort and the satisfaction of wants." Input and output are, following

¹⁷ We quote from Joan Robinson, *Introduction to the Theory of Employment*, London, Macmillan, 1938, p. 47-48, just because she is one of the theorists opposed to the waiting theory. The main objection to the waiting theory is that it has to presuppose the full use of the productive resources. Provided the productive resources are not fully employed, it is possible to increase the production of capital goods without decreasing the production of consumers' goods. Or it is even possible that producers' goods and consumers' goods production can be increased at the same time. The classical habit of assuming equilibrium at full employment as the starting point for the theory of capital and interest will have to be given up, especially if we want to investigate the monetary sources of the supply of loanable funds.

¹⁸ See D. H. Robertson, *Banking Policy and the Price Level*, p. 41, who chooses the colorless word "lacking."

¹⁹ This wrong impression was created especially by Gustav Cassel's formulations. See *The Nature and Necessity of Interest*, London, Macmillan, 1903.

²⁰ J. Schumpeter, *The Theory of Economic Development*, Cambridge, Harvard University Press, 1934, p. 38.

J. B. Clark's expression, automatically synchronized. The waiting theory, however, does not assume a shortage of consumers' goods in any absolute sense. Clark exemplified the process of synchronization by a forest with 50 rows of trees, from 1 to 50 years old, of which the oldest row will be cut every year while a new row is planted.²¹ It certainly cannot be denied, first, that the creation of the forest did involve a waiting process; secondly, that, 'in order to ensure the continuous supply of lumber we have to "abstain" from cutting any row short of 50 years of age; and, thirdly, that any regular increase in the supply of lumber necessitates a new process of waiting. A *present* reduction in the cutting of trees, say half a row, would allow the trees to grow older so that more waiting leads to increased *future* output. Schumpeter's whole argument, thus, boils down to the statement that we enjoy more consumers' goods in the proportion that more waiting was done during an earlier period, and that we can wait the more easily for future consumption the higher the level of consumption we already enjoy.

The main objection to the waiting theory is the fact that unemployed resources and unemployed labor exist. As long as we have not reached a state of full employment, we can increase the production of capital goods without having to decrease consumption. It is, therefore, quite obvious that the waiting theory does not offer a complete explanation of the determination of rates of interest since it does not take this case into account. We find rates of interest in periods of unemployment, a phenomenon not accounted for in the waiting theory.

The waiting theory is incomplete, but it can be shown that it is not incorrect. The waiting theory explains one of the factors which determine the amount of saving which is, again, only one of the many factors which determine the supply of

²¹ J. B. Clark, *The Distribution of Wealth*, New York, Macmillan, 1924, p. 131f.

loanable funds. Even in times of underemployment it is useful to consider that the amount of saving forthcoming at a decreased income level is dependent on the amount of indispensable consumption. With lower incomes people will save less than before. But this does no longer mean to say that the investment possibilities of the economy are now limited by these savings. Quite the contrary; if the national income decreases as unemployment increases, the potential supply of loanable funds for investment purposes becomes increasingly independent of the supply of savings and increasingly dependent on the creation of credit.

4. THE DIFFERENT MEANINGS OF THE PERIOD OF PRODUCTION

Once time-consuming processes of production have been embarked upon, their results have to be waited for, for purely technical reasons. To answer the complicated question as to how long this period of waiting will be, we have to distinguish different periods.

(1) To indicate the average production period in one particular plant (that period which people have in mind when they speak, for example, of self-liquidating commercial paper), we may assume that the input of labor and materials is the same every day and that at the end of one week the finished output is coming forth in a continuous flow. If the unfinished material equivalent to one week's output is continuously in the plant, the annual turnover of the working capital is 52 times, and the period of production is one week.

(2) The process of production in one plant, however, is only one stage of a much longer and much more complicated process. Our plant has used a variety of materials produced by other plants while its own product may not be a consumption good but just an intermediate good for use in succeeding stages of production. Thus, in trying to trace the different processes of production we find bewildering ramifications,

back and forth, nearly every plant succeeding some and preceding others. Preceding others, it distributes its products among the different succeeding stages; succeeding others it collects the necessary materials from a variety of other plants.²²

(3) All the different plants use more or less elaborate instruments of production. These fixed capital goods had to be produced, and their manufacture was a time-consuming process with all the ramifications backward into those industries and plants which participated in their production. It is evident that this waiting process has to be accounted for somehow in measuring the period of production of the consumption goods which are the ultimate aim of all economic activity.

(4) The value of the services of the fixed capital goods which enter into the product to which they contribute depends on the total amount of services which the fixed capital is capable of rendering during its lifetime. This lifetime of the fixed capital goods indicates another waiting period which we have to consider.

(5) The problem of a period of waiting for services exists also in the case of durable consumers' goods. The period of waiting for the results of a time-consuming process of production may go far beyond the point of time at which a consumers' good was technically completed, and it is not finished in an economic sense before use has been made of the last service the good is able to render or which people care to enjoy.

We do not wish to enter into the endless controversy on the problem of the period of production.²³ Having analysed what

²² It should be noticed that the impossibility of selling the goods produced within a "normal" period of time would increase the period of production in this wider sense.

²³ See F. Machlup, "Professor Knight and the period of production," *Journal of Political Economy*, Vol. 43, 1935; R. G. Hawtrey, *Capital and Employment*, chapter 1.

may possibly be meant by this term we are at least forewarned of misunderstandings which may result from the treacherous complexity of this concept. It is especially advisable to be careful in using the term "lengthening of the period of production" when we wish to indicate an increasing intensity in the use of capital, with the positive implication of an increase in the productivity of the factors employed. The term period of production is too ambiguous to be used in that straightforward positive sense. The accumulation of stocks of unsold goods (now so often defined as an increase of investment) also lengthens the period of production but does not increase the effectiveness or productivity of the economy. Technological progress, on the other hand, may result in reducing the period of production rather than in lengthening it.²⁴ Thus it seems advisable to keep well in mind the complicated structure of the modern time-consuming processes and not to obscure them by an oversimplified concept of the period of production. But this criticism of the use that has sometimes been made of the terms period of production and "lengthening of the period of production" should not make us discontinue stressing the importance of the waiting period in accounting for the relatively limited utilization of the time-consuming processes.

As we trace the progress of goods in process through the different steps of production from raw materials all the way up to the retailing of consumers' goods, we see that, by combining elements of production in an increasingly complicated way, goods are produced whose applicability to different uses and changing conditions varies inversely with their "specific" character. Consumers' goods can be used, as a rule, only for one particular purpose. This suggests that it is comparatively easier to adjust production to changes in demand in the very

²⁴ See A. H. Hansen, *Full Recovery or Stagnation?*, p. 28; D. Weintraub, "Effects of current and prospective technological developments upon capital formation," *American Economic Review*, Vol. 29, March 1939, Supplement, p. 15ff.

early stages of production, but that it is, at the same time, very difficult to predict with accuracy what the demand will be by the time the production processes are finished. On the other hand it is often next to impossible to alter the direction of production successfully in the final steps of production where changes in demand can more easily be ascertained. Processes of production, once started, often have to be carried through even though the market expectations on the basis of which they were planned have changed in the meantime and anticipated profits have turned into losses. To stop the process would mean the sacrificing of all the investments made thus far. It is impossible, as a rule, to retrieve the combined materials in an economical way (with a view to selling them for cash) to say nothing of the labor hitherto used. This shows that the process of "waiting" is often unalterably determined for a long time in the future once the processes of production have been started.

Because the processes of production are carried through by numerous independent firms, a false impression of liquidity and adaptability is created which the system as a whole does not enjoy. The loanable funds invested in the working capital of private firms are supposed to be short-term capital. But it can easily be seen that their short-term character depends on the ability to sell the product to the succeeding stages of production. Lacking demand for the product of the last stage of production (consumers' goods) leads to a wave of illiquidity in the earlier steps of production. If we call the loanable funds invested in working capital circulating capital, to evoke the idea of a revolving fund, we should be conscious of the fact that the regularity of its circulation within the plant depends on the regularity of a much larger and longer process of production, of which the particular plant is just one small integral part.

That the period of production (and therefore of "waiting") is often unalterably determined for a long time in the future

once the time-consuming processes have been started is of great significance for the theory of the business cycle. The inherent difficulties of the cycle cannot well be explained without reference to those rigidities which are due to the fact that time-consuming processes cannot easily be interrupted and that the factors of production cannot be shifted at will from earlier to later stages of production or vice versa. Once time-consuming processes have gotten under way there is a strong presumption that they will have to be continued and that they are, therefore, not very sensitive to adverse price changes. If business cycle theory has to explain why the adjustment of the economic system to irregular changes in the data does not come about smoothly and continuously,²⁵ then it is obvious that technological rigidities which determine the length of the period of production are of great importance.

²⁵ This is Professor Hayek's formulation of the problem of the trade cycle. See *Monetary Theory and the Trade Cycle*, p. 55.

Chapter 17

THE LOANABLE FUNDS THEORY OF INTEREST

1 THE "INVESTMENT POTENTIAL"

Assuming full employment, the total output of the economy is determined, within a certain period of time, by the available labor and natural resources by the instruments of production inherited from the past, by the stocks of goods in different steps of production, and by the state of the arts (the so called "technical coefficient of production") One part of the total output consists of consumers' goods actually consumed during that period, another part consists of instruments of production, still another part may be represented by an increase in stocks of finished and unfinished goods in process and consumption goods

The use of the means of production for the production of capital goods is called investment The total amount of investment is limited ultimately by the total amount of means of production available throughout the period of time under consideration, minus those means of production needed for the production of the goods actually consumed In times of "full" employment this limit is reached, and a further increase in investment is possible only at the expense of decreased consumption If the means of production are not fully employed, the production of investment goods and consumers' goods can be increased simultaneously Unemployed factors of production which are available for an increased production of investment goods will be called the investment potential of the economy

As to the amount and quality of the investment potential we have to consider the following points:

(1) The means of production constituting the investment potential have to be technically complementary. Because of an insufficient supply of suitable labor, it may result that complicated machines cannot be used. For the time being, that is, until the complementary labor can be procured, these temporarily unusable machines could not be included in the actual investment potential. In times of great unemployment there is usually available a diversified supply of unemployed means of production, and naturally there is a considerable choice in their utilization. Later on, when the investment potential is nearly fully employed, it becomes much more difficult to find all the means of production in the right proportions. This is the gradual process often called the "reaching of bottle-necks in production."

(2) With an ever-changing demand, and lacking instantaneous adjustability of the instruments and processes of production to changed demand conditions, there will always be some idle means of production. For these reasons an unplanned capitalist economy will never reach a perfect state of full employment of all the existing means of production. The extent to which the available means of production can be used depends mainly on the possibility of deliberately adjusting the kinds and amounts of demand to the technical means of production. The planned economy obviously has in this respect a great advantage over the unplanned economy in that it can make the collective demand correlate exactly with the available means of production. The nature, as to its quality and quantity, of the actually usable investment potential is therefore bound up with the character of the social-economic order in question.

(3) The investment potential changes whenever the total amount of consumption changes over and above the amount that could be satisfied out of existing stocks of consumers'

goods. This is especially important in a capitalist economy where consumption tends to change automatically and in the same direction whenever investment changes. As investment increases, more men are employed,¹ the national income increases, and part of this increase is sure to be spent on consumers' goods. In conditions of non-full employment, therefore, increasing investment tends to decrease the investment potential from two sides: through the use of the available means of production for investment purposes and through the increased demand for and the production of consumers' goods. This multiplier effect¹ ought to be considered most carefully when size and time duration of a planned investment program are to be decided upon. The ideal would be that the expansion of the production of capital goods and the production of consumers' goods should result in their being harmoniously balanced when the desired state of full employment is reached. It is the failure to achieve balance at this point of time which prevents the state of full employment from continuing.

2. THE DIFFERENT SOURCES OF THE SUPPLY OF LOANABLE FUNDS

So far we have avoided capital problems of a monetary character. Our propositions are therefore applicable to economic orders of any type. It has already been indicated that the planned economy has the great advantage of adjusting the ends to the means whenever large parts of the investment fund tend to remain idle. Free choice of consumption was mentioned as one of the basic difficulties of the unplanned economy with respect to its use of all the available means of production. Free choice of consumption means that people are free to decide for themselves not only *what* they shall consume but also *how much* they choose to consume within the

¹ The multiplier effect will be discussed in chapter 21, sections 1 to 3.

limits of their money incomes. And it also is entirely up to private individuals or groups to decide on the use of the investment potential by means of time-consuming processes of production. With millions of people acting independently of each other it seems unlikely that the production of consumers' goods and the production of capital goods will exactly amount to the highest possible total output of the economy at full employment. It might seem, however, that there is at least a tendency which would, if unhindered, lead eventually to an equilibrium position at full employment. This question leads squarely into the theory of interest and credit.

Some theorists have contended that those who consume less than their means permit offer "waiting," and that others, eager to invest, demand "waiting"; and that the supply of and the demand for "waiting" are equated by a price for "waiting" called interest. We have already rejected this proposition. What those people who spend less than their incomes can offer is money; and what those who propose to embark upon time-consuming processes demand is also money (of course, not money to be held in cash drawers or accounts but rather money to be expended on means of production). The sums of money supplied and demanded in the credit market may be called *loanable funds*.² If we want to stress especially the investment purpose for which the loanable funds are going to be used, we may choose the term *investable funds*.³ "Credit"⁴ or money capital⁵ would also be convenient substitute expressions.

² See D. H. Robertson, "Alternative theories of the rate of interest," *Economic Journal*, Vol. 47, 1937.

³ See G. von Haberler, *Prosperity and Depression*, pp. 289ff.

⁴ See B. Ohlin, "Some notes on the Stockholm theory of savings and investment," *Economic Journal*, Vol. 47, 1937.

⁵ This term is used by Professor Machlup and is defined as "sums of money which are available for the purchase of productive goods and services." *The Stock Market Credit and Capital Formation*, p. 15.

Let us enumerate first the main factors influencing the supply of loanable funds.

(1) The supply of loanable funds is often said to be determined exclusively by what is called *saving*. A man is said to save if he does not spend all his income received in the preceding period (disposable income) for the purchase of consumers' goods during the period under consideration.⁶ Total savings or savings for the economy as a whole, therefore, amount to the total money income earned in period *A*, minus money spent for consumption in the succeeding period *B*. Dissaving on the other hand takes place if a man decides to increase his consumption by "eating up" former savings. Assuming that total dissaving falls short of total saving, we may take care of dissaving by considering the total amount of saving as accordingly reduced. The economy as a whole is said to be dissaving if it does not "maintain its capital."⁷

Apart from the savings of individuals there are what might be called the savings of business corporations. These institutions, instead of paying out all of their earnings as money incomes (in the form of dividends) to stockholders, retain part of them for investment purposes. Since the investment will take place within the firm, these savings do not appear on the supply side of the market for loanable funds; or, if we should choose to count them as part of this supply, they have to be counterbalanced by the assumption that the demand side has been increased equally. Since the process of building up these corporate savings tends to be continuous while the process of investment may be discontinuous, it is possible that

⁶ See the more elaborate definition in Robertson's "Saving and Hoarding," *Economic Journal*, Vol. 43, 1933, p. 399.

⁷ The problem of defining this concept is "incapable of a completely tidy solution" (Robertson). For a discussion of the problems connected with this complicated term see F. A. Hayek, "The maintenance of capital," *Economica*, August 1935.

some of these loanable funds will actually be offered temporarily on the credit market.

(2) Savings (minus dissavings) constitute a supply of loanable funds if they are made available in the market for those people who want to bid for them. There is a strong presumption, as a matter of fact, that this transfer of savings to the credit market will actually take place without much time lag, partly because of the interest paid for the temporary use of the money. But it can and does happen that motives for liquidity⁸ are strong enough to induce people to forego interest revenue in order to increase their cash balances relative to their incomes. This behaviour is called "*hoarding*" and it results in a reduction of the transaction or income velocity of money. It has to be noticed that, while any one individual or firm can hold higher cash balances than in the preceding period, this can obviously not be the case without the simultaneous reduction of other peoples' or firms' cash balances, unless we assume that the total amount of money has been increased. All cash balances in the economy taken together are equal to the total amount of money, and the process of hoarding can therefore not simply be described as an increase in the sum total of cash balances. The term hoarding must either refer to an increase in "passive" instead of "active" cash balances, or it must be defined directly as a reduction in the velocity of circulation of money. Hoarding reduces the amount of savings actually supplied as loanable funds. Money which was received as income in period *A* has been expended neither for consumers' goods nor for investment purposes in period *B*, and therefore fails to become income in this period or a later one (until it is dishoarded). Not only are savings prevented from becoming active as loanable funds, but the very source of savings, the national income, is reduced for the next income period. Dishoarding on the other hand increases

⁸ See chapter 6, section 3.

the supply of loanable funds out of hoards built up during former income periods. The total supply of loanable funds is therefore partly independent of the earned income of the income period immediately preceding.

(3) Hoarding and dishoarding can be offset, at least theoretically, by means of *changes in the quantity of money*. Hoarding, as an increased demand for cash balances, can be met by satisfying this increased demand through the creation of additional money. Dishoarding, on the other hand, can be counterbalanced by a reduction in the quantity of money. But the monetary authority and the commercial banks are usually able to do much more. They can try to influence the supply of loanable funds by creating and destroying money over and above the amount needed for the compensation of hoarding or dishoarding. Whether the central bank and the commercial banks can successfully create loanable funds depends not only on the attitude of the public as to cash balances but, above all, on the demand for loanable funds for investment purposes. Nevertheless, actions of the monetary authority, or of the commercial banks, are among the main factors determining the supply of loanable funds. The effects of variations in this supply are exactly similar to the effects of hoarding or dishoarding. An increase in the supply of money has the tendency not only to increase the supply of loanable funds but also to increase the total money income for the next income period; and the reverse tendency exists when the supply of money is decreased. The economic consequences of the monetary factor in the supply of loanable funds, especially as compared with the savings factor, will be discussed later on. For the moment it may suffice to indicate that the monetary management of the supply of loanable funds (if not merely attempting to counteract changes in hoarding or dishoarding) is inflationary or deflationary in character, the effect on commodity prices depending on the simultaneous development of the volume of production and trade. What

the chances are that an increased supply of loanable funds out of credit creation will lead to an increased national income in terms of physical output depends partly on the availability of unused factors of production.

(4) Also to be counted among the sources of the supply of loanable funds are *amortization quotas*. These amortization quotas do not help to increase the total amount of real capital, and therefore it seems questionable whether funds devoted only to the maintenance of the existing capital should be included in the supply of loanable funds. But amortization quotas are of exactly the same significance as other loanable funds. They may be treated as savings provided that we distinguish between "gross" and "net" savings. Amortization quotas are, then, included in "gross" savings but excluded from "net" savings. The money set aside for the maintenance of capital has all the qualities of a new supply of loanable funds. It may be used for the production of capital goods which are physically entirely different from the ones which are supposedly maintained. This change for the better in the quality of capital goods, this adjustability to changes in technique and demand, the possibility even of using these funds for purposes of dissaving (by not investing them), are reasons enough for including amortization quotas as part of the supply of loanable funds. Occasional terminological inconsistencies can easily be avoided by distinguishing gross-investment from net-investment, the latter being gross-investment minus the maintenance of capital.⁹

(5) The recurrent *turnover of working capital* constitutes another source of loanable funds, similar to amortization quotas. Amortization quotas indicate the "liquidity" of fixed capital goods. Working capital, as a "revolving fund," is supposed to have a much higher liquidity and to regain its monetary form whenever output is sold. Where the production

⁹ Haberler, *Prosperity and Depression*, p. 194.

processes are not perfectly continuous, these funds will usually be offered temporarily in the short-term market. This does not mean that the average supply of loanable funds per period of time has been increased. But the length of time for which these funds are offered is an important factor in the structure of the supply of loanable funds. Besides, though not necessarily a factor which increases the supply of loanable funds,¹⁰ these temporary offerings of working capital may be highly significant in helping to account for sudden reductions in the supply of short-term funds on the so-called money market. Assuming that output cannot be sold, these funds, supposedly liquid and circulating, become "frozen" and cannot, for the time being, be supplied again.

(6) As a last factor determining the supply of loanable funds we may include all those measures of economic policy which influence the decisions of people taken as a group as to what part of their incomes will be saved or spent on current consumption. Outstanding among these are *tax policies* which stimulate or retard the formation of capital and the building up of *social security reserves*. While these policies are to be considered *partly* as factors among others which determine the amount of "voluntary" saving, they are of special importance in cases in which they enforce "involuntary" saving, as for example, contributions to social security funds.

The loanable funds flowing from all these different sources consist of monetary units, thus forming a supply whose homogeneity is unparalleled in any other market of the economy. This monetary homogeneity, however, veils differences of origin, which are of great economic importance. Some changes in the supply of loanable funds do not change the amount of the flow of money (MV). The classical theory interpreted these variations as changes in the supply of

¹⁰ Our discussion of the velocity of circulation of money has shown, however, that the temporary supply of working capital can be considered as an increased velocity of circulation of money. See chapter 6, section 2.

savings.¹¹ Changes in the supply of loanable funds which do not at the same time alter the active circulation of money imply a corresponding change in consumption. This change in the demand for consumers' goods will have certain consequences for the future productivity of the economy, but it will not change the magnitude of total demand in monetary terms, total income, or total employment except for the effects of frictions which complicate the transfer of resources from consumption to investment, or vice versa.

Entirely different results follow in the case of a change in the supply of loanable funds which results from a change either in V (velocity of circulation of money: hoarding or dishoarding) or in M (quantity of money: credit creation or credit contraction). Changes in the active circulation of money inject the monetary germ into the exchange economy, having either inflationary or deflationary consequences. Variations in the total amount of money spent influence total demand, money incomes, and, very likely, total output. How total output will react relative to the increase in money incomes, or, in other words, what the relation between MV , T , and P will be during the successive time periods under consideration, is a question whose answer depends largely on the existence of an unused investment potential.

3. THE DEMAND SCHEDULE OF LOANABLE FUNDS

The demand for loanable funds is either a demand for producers' or a demand for consumers' credits. We may for convenience call the demand for producers' credits a demand for investable funds. But it has to be considered that the demand for consumers' credits may be very similar to the investment demand of entrepreneurs. If the demand for investable funds is, in a sense, an indirect demand for means

¹¹ Besides savings this case may include amortization quotas, temporarily unused balances which are customarily supplied, or items like social security reserves.

of production for use in time-consuming processes, then it is evident that most consumers' credits are used likewise for the purpose of financing time-consuming processes. As shown earlier in our analysis, the waiting for the services of durable consumers' goods has to be included in the period of production,¹² and the process of waiting for the services of durable consumers' goods has to be counted, therefore, as part of the demand for loanable funds. Consumers' credits are, from a general viewpoint, just as important as producers' credits and should not be looked at exclusively in the negative sense that they tend to decrease the supply of loanable funds for financing production. It is often a matter of little importance whether this later step in the waiting process (*viz.*, the waiting for the services of durable consumers' goods), is financed as a consumers' credit, for example, to the user of a home, or as a producers' credit, to the builder.

As to the factors determining the demand for loanable funds for investment purposes (investable funds) there is little controversy between authors who differ widely on other aspects of the problem. The demand for loanable funds is dependent on the anticipated profitability of the planned investment. The different investment possibilities can be arranged in a sequence of decreasing profitability. The degree of profitability determines the eagerness of the competing entrepreneurs to obtain the necessary loanable funds and their disposition to pay rates of interest only slightly lower than the expected profits, should competition force them to do so. In other words, given the "state of arts," there must exist a certain demand schedule for investable funds¹³ reflecting the fact that an increasing number of entrepreneurs will be willing

¹² See chapter 16, section 4.

¹³ If we wish to draw a diagram, the vertical distances would measure the rate of interest while the distances along the horizontal axis would show the amounts of loanable funds. The demand curve would slope downward to the right.

to make use of increasing amounts of investable funds at a decreasing interest cost. There is one rate of interest in each of the different credit markets (short-term market and long-term market and their respective subgroups) at which the market demand for investable funds will be equal to the supply from current voluntary savings.

Part of the demand for loanable funds is a demand for cash balances rather than a (indirect) demand for capital goods. Changes in the demand for money (cash balances) can be expressed through shifts in the demand curve or the supply curve of loanable funds since an increased demand for cash balances can be treated as a decreased supply of loanable funds for investment purposes.

The amount of loanable funds supplied will also depend, at least to some extent, on these rates of interest. We shall have to find out how the different sources of the supply of loanable funds will react to changes in the rates of interest. But, whatever the result may be, we have to assume that the supply of and the demand for loanable funds will be equated at certain interest rates, interest being the price for loanable funds. But this does not mean that these equilibrium rates indicate, at the same time, an economic equilibrium at full employment.

The response of the demand for loanable funds to changes in the rate of interest or, even more generally, the total behavior of the demand schedule, rests on profit expectations.¹⁴ Since investment means embarking on time-consuming processes, it would be illogical to assume that the demand for loanable funds depends on present profits only. Not before these time-consuming processes have been concluded can there be any final knowledge about the actual level of profits. The anticipations rest partly on past experience, partly on

¹⁴ See especially Ohlin, "Some notes on the Stockholm theory on savings and investment," *Economic Journal*, Vol. 47, 1937, p. 61.

estimates as to what changes in cost and demand conditions may occur. We shall see that these anticipations are bound to be partly erroneous since they are based on conditions which will be changed by the very investments which they call forth.

4. THE SUPPLY SCHEDULE OF LOANABLE FUNDS

It has been said that the supply of loanable funds is also the result of anticipations rather than of present conditions, so that "future" savings directly affect the supply of today. But this language is entirely figurative and implies a false notion. A person can demand credit on account of anticipations of future profits, but he cannot supply future savings.¹⁵ The importance of anticipations in relation to the supply of loanable funds means simply this: a man's optimism regarding his future income may lead him to make different decisions regarding the present use of his income and his accumulated wealth, quite apart from the possibility of increasing his expenditures today by means of a consumers' credit. Thus, present consumption, present saving, and present hoarding are inextricably bound up with anticipations. What is actually supplied is certainly not future savings. But the decisions about the allotment of income and wealth to different purposes will be influenced by the anticipations regarding future income.

Thus it is not only the rates of interest of to-day and the income already received that determine the supply of loanable funds but also the expectations as to future income and future interest rates. How people's saving and consumption habits react to changes in present and anticipated rates of interest is difficult to say. The basic assumption probably has to be that the savings part of the supply curve of loanable funds shifts upward to the right, that is, that people are inclined to save more at successively higher rates of interest. But it has

¹⁵ See F. A. Lutz, "The outcome of the saving-investment discussion," *Quarterly Journal of Economics*, Vol. 52, 1938, p. 602ff.

been pointed out by Professor Cassel¹⁶ and others that a rise in the rate of interest which increases the expected future income from capital may just as well induce people who have a relatively fixed income goal in mind to save less than before. At a higher rate of interest a smaller amount of capital will yield the same income as a larger amount of capital would yield at a lower rate. As to the influence of changes in income upon saving it may be a fair first approximation to assume that "men are disposed, as a rule and on the average, to increase their consumption as their income increases, but not by as much as the increase in their income."¹⁷ In fact we know that as income increases, consumption, though increasing in absolute figures, tends as a rule to decrease relatively so that a greater proportion of income is being saved. In terms of the waiting theory we could say that a higher level of consumption carries with it an increased willingness of people to forego some consumption in the present in the hope of bettering their opportunities for consumption in the future.

Hoarding too depends on the rate of interest. If a man hoards money instead of supplying it on the credit market he earns no interest. This is the reason why it is correct to consider interest in part as a "reward for parting with liquidity."¹⁸ If the interest rate is low, people will be less interested in holding only the smallest possible cash balances whereas a high rate of interest may induce them to subordinate their desire for liquidity and to economize their cash balances in order to be able to supply larger sums to the credit market. We have already pointed out that the motives for liquidity—the "liquidity preference"—influence the velocity of circulation of money. When income increases, individuals and firms tend to hold correspondingly higher cash reserves because of the transaction motive for holding cash. It seems advisable,

¹⁶ Gustav Cassel, *Theory of Social Economy*.

¹⁷ J. M. Keynes, *The General Theory of Employment, Interest and Money*, p. 96.

¹⁸ Keynes, *Ibid*, p. 167.

however, to confine the terms hoarding and dishoarding to cases of spontaneous changes in the demand for cash balances and not to use the term for cases in which cash balances tend to adjust themselves to changes in the money income received. These cases of hoarding and dishoarding will depend mainly on what were called the speculative motive and the precautionary motive for seeking liquidity. It is partly through these motives that changed anticipations of future incomes, prices, and interest rates will influence the present supply of loanable funds.

The supply of loanable funds out of credit creation comes either from the central bank (the monetary authority) or from the commercial banks. The monetary authority is supposed to regulate the rates of interest and is therefore not to be assumed to be wholly passive with respect to them. The total supply of loanable funds arising out of credit creation, however, cannot be strictly controlled by the monetary authority as long as the commercial banks are able to act independently. The power of the commercial banks to create loanable funds has been called the chief loose screw in our monetary and credit system because of the difficulties of subjecting it to effective control by the monetary authority.¹⁹ The same wave of optimism which makes people dishoard in anticipation of a brighter business outlook makes the commercial banks supply more loanable funds, especially if rates of interest do not have to fall for this purpose (that is, assuming a shifting to the right of the demand curve of loanable funds). The resulting increase of money incomes, however, makes the demand for common money for transaction purposes increase. But it may be only after the credit expansion goes very far that the commercial banks approach the limits of their power to create deposit money independently and thus have to submit to the restrain-

¹⁹ Irving Fisher and associates in a mimeographed "Program for Monetary Reform," 1939.

ing influence of the monetary authority which manages the supply of common money. The supply schedule of investable funds, therefore, may at times have a rather dangerous elasticity.

The analytical shortcoming of a loanable funds supply schedule which represents the amount supplied as depending on the rate of interest lies in the fact that it excludes (by the assumption of *ceteris paribus*) the influence of changes in income which may be much more important than the changes in the rate of interest. Thus we either have to use three-dimensional supply curves or we have to be constantly conscious of the probability that our two-dimensional curve is shifting all the time.²⁰ This shifting of the supply curve makes it rather difficult to apply a period analysis to our problem, and we are at least forced to assume rather short periods if we are to have any confidence in the validity of such an approach. The question of changes in the national income and its relation to saving and investment will be taken up in chapter 18.

5. GRAPHIC REPRESENTATION OF THE LOANABLE FUNDS THEORY OF INTEREST

Fig. 22 is a graphic representation of the loanable funds theory of interest.²¹ S is the supply of loanable funds out of ("planned" or "intended") savings. M is the supply of loanable funds through credit creation. $S + M$ is the total supply of loanable funds. I is the investment demand for loanable funds. H is the demand for loanable funds for use as inactive cash balances, i.e., for hoarding. $I + H$ is the total demand for loanable funds. $I + H$ and $S + M$ intersect at P , which indicates the level of the market rate of interest.

²⁰ See Max Millikan, "The liquidity preference theory of interest," *American Economic Review*, Vol. 28, 1938, p. 255.

²¹ A similar treatment is found in A. P. Lerner, "Alternative formulations of the theory of interest," *Economic Journal*, Vol. 48, 1938, p. 213ff.

This graph made no explicit provision for any demand for consumers' credits. We may correct this by assuming either that I was meant to include the demand for consumers' credits or that S was meant to be "net savings," i.e., savings minus consumers' credits. If a part of the savings is used up by "dissavings," only the remainder is available for investment purposes.

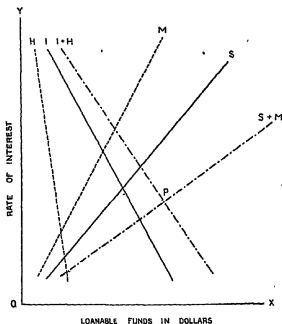


FIG. 22.

S includes private as well as corporate savings, and current additions to social security reserves. If current additions to depreciation reserves (amortization quotas) are included in S , replacement demand will have to be included in I besides the expansion demand. I will then represent "gross investment" rather than "net investment."

M is the amount of money (credit) newly created during the period under consideration. Money may be created by

the monetary authority without consideration of the rate of interest; M would then be completely inelastic. M may, on the other hand, be very elastic if the commercial banks are assumed to hold substantial excess reserves. M would be negative, that is, to the left of the OY axis in the case of credit contraction, moving $S + M$ to the left of the position on the chart.

H , the demand for additional inactive cash balances, could also be negative, indicating a process of dishoarding.²²

Inclusion of the effects of changes in the national income into our two-dimensional chart would require shifts of all curves.

6. THE MARKET RATE AND THE NATURAL RATE OF INTEREST

In concluding that rates of interest are prices determined by the supply of and the demand for loanable funds we steer clear of the many misleading ideas which have confounded this subject, such as the beliefs that interest is the reward for "waiting" or the price which equates saving and investment. The supply of loanable funds comes from diverse sources. The attempt to segregate the savings part of the supply and to call that rate of interest *normal* at which exactly this part of the whole supply would be offered in, and taken from, the market may be interesting and useful as a method of analysis, but it can hardly fail to be confusing rather than helpful unless we consider it merely as a theoretical device whose analytical value depends entirely on the assumptions on which it rests.

A short discussion of Wicksell's theory of the normal rate of interest will help to throw light on some of the controversial issues in the field in which the theories of money, credit, and capital overlap.

²² Alternatively, dishoarding could be treated by shifting M to the right; that is, M would be assumed to include dishoarding as a source of supply of loanable funds.

Wicksell distinguishes, as we have already stated, the loan or market rate of interest (which is an average of the rates actually paid on the credit market) and the real or natural rate of interest. The latter he defines alternatively as the rate (1) "at which the demand for loan capital and the supply of savings exactly agree"; (2) "which more or less corresponds to the expected yield of the newly created capital"; (3) "at which the general level of commodity prices has no tendency to move upward or downward"; and (4) "which would be established if one would not make use of monetary transactions but real capital would be loaned *in natura*."²³

Wicksell's famous cumulative process of expansion and contraction is the result of a divergence between the loan rate and the natural rate of interest, the result, that is, of a loan rate which is not "normal." As long as the market rate is lower than the natural rate, prices must rise for a number of reasons. First of all, saving will be discouraged and consumption will tend to increase while entrepreneurs see higher profit opportunities in investment than they would at the (higher) normal rate. The entrepreneurs' increased demand for factors of production, financed out of newly created or newly activated funds, raises the income of workers, landowners, etc., and leads to a further increase in the demand for consumers' goods at a time when consumers' goods production decreases because of the competitive demand for the factors of production for investment purposes. All these tendencies have

²³ These definitions are taken from *Lectures on Political Economy*, Vol. 2, *Money*, and from *Geldzins und Güterpreise*, a not very faithful translation of which is published under the title *Interest and Prices*, Macmillan, London, 1936. The last of the quoted definitions of the natural rate of interest is practically useless since it is impossible to conceive of a uniform rate of interest as a uniform price for a uniform service in a barter economy. See Eric Lindahl, *Studies in the Theory of Money and Capital*, p. 248; Gunnar Myrdal, *Monetary Equilibrium*, p. 49f. We shall nevertheless use the term natural rate because the term real rate has already been widely accepted to designate the market rate plus or minus changes in the general price level.

the same effect of increasing prices, and this process will continue as long as the market rate of interest is kept below the natural rate which would equate the demand for loanable funds and the supply of savings. At the lowered rate the supply of savings constantly has to be supplemented by a supply of loanable funds out of inflationary sources. The general level of commodity prices will, therefore, constantly be raised. A similar cumulative contraction process (deflation) will result from a market rate which is artificially kept above the natural rate. If the market rate is normal, that is, if it is equal to the natural rate, the economy will be in equilibrium, loanable funds will be supplied out of savings only, and the rate of interest will be exactly equal to that rate of profit at which the total supply of savings will be taken from the market while the price level remains stable.

The main difficulty of a discussion of Wicksell's cumulative process is the fact that we cannot support Wicksell's basic assumption of an equilibrium *at full employment*. Once this equilibrium has been departed from, it becomes much more difficult to attach a definite meaning to the "normal" rate of interest.²⁴ When a period of credit contraction and hoarding has been passed through, there are always unused factors of production available which could be used for investment purposes. Consumers' goods production does not have to be contracted and may even be expanded while investment increases. It is obvious that a tendency towards increasing prices can be checked under these conditions, for some time at least, by a corresponding increase in the volume of trade. This means however that there would be *two* normal rates of interest, one which keeps the average price level stable and another which equalizes the supply of and the demand for savings. This divergence can either be attributed to the fact that the volume of the goods offered for sale increases suffi-

²⁴ See Robertson, *Essays in Monetary Theory*, p. 84.

ciently to compensate for the artificial increase in the supply of loanable funds out of inflationary sources; or it can be considered as a situation in which the supply of savings falls short of the available investment potential (the supply of savings being abnormally low because the national income is low—that is, lower than it would be at the full employment level).

This terminological difficulty points to the very real problem as to which of the two “normal” rates should be chosen for the guidance of monetary policy (the one which keeps prices stable or the one which equalizes the demand for loanable funds and the supply of savings) and as to which rate is likely to start, in spite of its “normality,” a cumulative process. It is, furthermore, perfectly possible that a Wicksellian process may be started whose final result will be an equilibrium situation rather than a situation which gets entirely out of hand, provided that the monetary authority is willing to adjust the market rate later on to the changing conditions.

It has been held by Professor Cassel²⁵ and others that the lowering of the rate of interest would increase the volume of investment to such a degree that the marginal efficiency of capital would come down to the artificially lowered market rate of interest, thus establishing a new equilibrium at a lower “normal” rate than before and at a higher price level, but, nevertheless, an equilibrium which puts an end to the cumulative process.

Wicksell admitted that this possibility could not be entirely rejected. He argued that if “forced” saving (saving enforced by an inflationary price-rise which decreases consumption) exceeds the decrease in voluntary saving, so that on the whole more loanable funds are supplied for investment purposes and if “production is unable to absorb unlimited quantities of new capital without a reduction in net yield, then the incipient

²⁵ Gustav Cassel, *Theory of Social Economy*, p. 497.

rise in prices, though it would certainly not recede, might yet be arrested, unless the banks reduced their rate still further."²⁶ This argument is already implied in definition (2) given above which defines the natural rate of interest as "the rate which more or less corresponds to the expected yield of newly created capital." The lower rate of expected profit which has become equal to the market rate would, then, automatically arrest a further rise in prices (and thus correspond to the rate at which the general price level remains stable) *provided* that no further credit creation would be necessary to maintain the (originally artificially lowered) market rate.

This, however, could only be the case if at the same time the conditions of definition (1) could be fulfilled (the identity of the supply of savings and the demand for loanable funds). It is very unlikely that saving would have increased sufficiently to satisfy the total demand for loanable funds which would henceforth prevail at the artificially lowered market rate. "There is no reason to suppose that the effect of a change in the quantity of money on the rate of saving will be such as to compensate the change in the rate of investment. There is, indeed, a general presumption that the effect on saving, if any, will be opposite in direction to the effect on investment, the easier terms to borrowers meaning less satisfactory terms to lenders, so that what stimulates the one retards the other."²⁷ The natural rate of interest which is equal to the anticipated net yield of the newly produced capital goods must therefore by no means be expected to be identical with the natural rate which equilibrates the supply of savings and the demand for loanable funds. The identity of these two natural rates can be presupposed only under very special circumstances.²⁸ Assuming that the rate which equates the demand for loanable

²⁶ Wickcell, *Lectures*, Vol. 2, p. 198.

²⁷ See J. M. Keynes, *A Treatise on Money*, Vol. 1, p. 264.

²⁸ See Lindahl, *Studies in the Theory of Money and Capital*, p. 182.

funds and the supply of savings and the rate which is equal to the anticipated marginal efficiency of capital are *different*, we have to conclude that the cumulative process of expansion will continue. The demand for loanable funds will be greater than the supply of savings, and the supply of loanable funds will, therefore, have to be supplemented by credit creation. Under these assumptions it is very unlikely that the natural rate of interest, which is equal to the expected net yield of capital, taken as the criterion for the "normal" market rate, will stabilize the general price level. It has to be considered, furthermore, that the increase in the general price level in itself continuously decreases the effective money rate of interest—Irrving Fisher's real rate—(since credits are paid back in money of a decreased purchasing power) thus making it more and more unlikely that the decreased rate of profit will arrest the demand for loanable funds in time to stop the cumulative process.

It has been stated by Davidson,²⁹ Hayek,³⁰ and others that a market rate which remains below the natural rate must not necessarily lead to a general rise in prices provided that the productivity of the economy is sufficiently increased. This could possibly be the case even if we start Wicksell's cumulative process at a time of full employment. It is interesting to note that the price-rise is, in this case, assumed to be arrested (or at least partly counterbalanced) by an increasing real yield of capital—which is exactly the opposite of Professor Cassel's argument. What was already admitted by Wicksell³¹ and what was somewhat over-emphasized by his critics is well known by now, namely, that one and the same market rate

²⁹ See Brinley Thomas, "The monetary doctrines of Professor Davidson," *Economic Journal*, Vol. 45, 1935, pp. 36ff.

³⁰ F. A. Hayek, *Monetary Theory and the Trade Cycle*, p. 111ff.

³¹ "If previously there had been unemployment it is, of course, not impossible for the rise in prices (caused by an abnormally low loan rate) to be counteracted to a certain extent by an increase in production." The same

does not necessarily equate the demand for loanable funds and the supply of savings *and* maintain at the same time a stable price level. The stabilization of a general commodity price level is, therefore, not a simple guide to the "normal" rate of interest. Wicksell was oversimplifying a most complicated problem and was wrong in attaching only secondary importance to the case of increasing productivity due to the availability of unused resources or to new discoveries and innovations.

In the case of underemployment of resources there is much to be said for an increased supply of loanable funds out of inflationary sources and for a market rate of interest which is lower than the rate which equates the supply of savings and the demand for loan capital. After all, the size of savings depends on the size of the national income, and with a national income far below its possible optimum it seems highly questionable that the thin stream of savings forthcoming at that low income level should be taken as the "normal" supply of loanable funds.

effect can be expected "if higher wages had induced longer working hours" or if the roundaboutness of the processes of production increases. Wicksell, *Lectures*, Vol. 2, p. 195.

This is the general setting in which we find the liquidity preference theory of interest. Keynes's theory of interest is an integral part of his general theory of employment.

Since Keynes's theory represents one of the most important contributions to the theory of money in its relation to the theory of employment, it seems advisable to restate Keynes's ideas in the terminology of the loanable funds theory before we criticise the terminology which is used by Keynes.

We have already shown how the level of income may be influenced by changes in the total supply of money (credit creation; credit contraction) and in the velocity of circulation of money (hoarding; dishoarding). We arrived at the conclusion that the national income is maintaining itself when all savings forthcoming at a given income level are invested but that the national income is bound to change whenever saving and investment differ due to any one of the above-mentioned monetary factors.

The equilibrium position in which investment equals saving and in which the national income is maintained is not necessarily a full employment equilibrium. Let us assume, for example, that the national income has reached its full employment level and that, at this level, 20 per cent of the national income is saved (that is, not spent on consumers' goods). Only if this 20 per cent is invested (that is, spent in the production of capital goods or durable consumers' goods), will the full employment level of the national income be maintained. Assuming, however, that only 10 per cent is being invested (because rates of interest are higher than the anticipated rates of profit from an investment of all current savings), the national income will decrease by 10 per cent (or more) because money which is not spent cannot be received as income. Whether the national income will be maintained at its new lower level depends again on the relation between investment and saving. Only if savings are far enough reduced or if investments are again far enough increased so that invest-

ment and saving become equal, will a new equilibrium be established. Since rates of interest and rates of profit are determined by a great number of factors which are again dependent on the level of income, the process is very complicated indeed. Our grossly oversimplifying example need not be elaborated and complicated, however, in order to show that the equality of saving and investment may be reached at any one of many different employment and income levels due to the determining influence of such factors as the propensity to consume or to save, rates of interest, anticipated rates of profit, income distribution, investment opportunities, and the like. As long as investment falls short of saving, the national income continues to shrink. Should there be no net investment at all, the national income would have to fall to the level at which all income received is being spent on consumers' goods.

These considerations of the interrelation between national income, consumption, saving, and investment are in substance very similar to those of Keynes. The novelty of the Keynesian approach lies in the fact that it is not rates of interest but exclusively the level of income which ensures equality between saving and investment.³ If we remember that this equating effect of rates of interest is, according to Keynes, the basic idea of the classical theory of interest, then it is quite clear that he could not make use of the *classical* theory of interest. But a correct interpretation of the *loanable funds* theory of interest would have shown (1) that it does not pretend that interest is the price which equates saving and investment; (2) that it is perfectly compatible with the assumption of changes in the level of income; and (3) that its monetary elements (hoarding, dishoarding, credit expansion, credit contraction) are perfectly fit to explain why changes in the national income occur and that they may, in turn, influence saving, investment, and rates of interest.

³ See J. M. Keynes, "Alternative theories of the rate of interest," *Economic Journal*, Vol. 47, 1937, p. 250.

2. "SAVING EQUALS INVESTMENT"

Keynes is not willing to accept the loanable funds theory of interest since it implies that saving and investment may be unequal, the supply of loanable funds being determined not only by saving, but also by hoarding, dishoarding, credit creation and debt cancellation. His theory is formulated in such a way that saving and investment are always equal by definition. But since the identity of saving and investment holds good whatever happens, it is simply a truism which does not reveal causal relations. That is to say, if the equality of saving and investment exists always by definition or is brought about by our way of defining the terms, we do not learn how the equality of saving and investment in the sense of independent human actions is brought about in the real world.⁴

Keynes's definitions are as follows: If Y is the total income, and if C is the total expenditure for consumption during the period, then $Y - C = S$, the amount of saving in the period. "The sum of income of all the individuals in the economy, Y , is equal to the sum of the expenditure of all kinds by the individuals of the economy, since these expenditures *are* nothing but the payments, the receipt of which constitutes all the incomes. The sum of all the payments must be equal to the sum of all the receipts in the same period, since these are the same thing, only looked at from different angles. The sum of expenditures of all kinds, which is equal to Y , must consist of C , the sum of expenditures on consumption, *plus* I , the sum of expenditures on things other than consumption, since these two make up all possible expenditures. This gives us the equation $Y = C + I$ or $Y - C = I$. We know that $Y - C$ is also equal to S , and since quantities that are equal to the same

⁴ D. H. Robertson, "Alternative theories of the rate of interest," *Economic Journal*, Vol. 47, 1937, p. 429.

quantity are equal to one another, we get the result that $S = I$.⁵

Let us assume a case in which the monetary authority increases the supply of money (loanable funds). This leads, according to the loanable funds theory, to a reduction in interest rates which tends to stimulate borrowing and investment by entrepreneurs. If money income in the next income period is increased, it is because investment has been greater than saving due to the additional supply of money in the preceding period. In the Keynesian terminology I (investment) cannot possibly differ from S (saving); the creation of money for investment purposes is assumed immediately to increase somebody's income, and until this money is spent on C (consumption), it is supposed to be "saved." (For it is income which has not—not yet—been consumed.) A short account of the case of hoarding in terms of the loanable funds theory is as follows: Income received has neither been spent on consumers' goods nor has it been supplied successfully on the market for loanable funds. Demand for goods and services decreases, goods remain unsold, prices fall, the income of the next income period is decreased with reactions on C , S , and I . Using the Keynesian terminology we have to say: since neither capital goods nor consumers' goods were bought (in the amount which the loanable funds theory defines as hoarding); consumers' goods and producers' goods remain unsold and therefore have to be counted as investment.

The difficulty with the Keynesian terminology is that it tries to show how quantities, which are identical by definition, are *made* equal, an attempt which has to end in terminological inconsistencies. The $S = I$ terminology is an example of what Leontief has called the "short-cut method of implicit theorizing."⁶ The weakness of this method is not to be found in

⁵ A. P. Lerner, "Saving equals investment," *Quarterly Journal of Economics*, Vol. 52, 1938, pp. 297f.

⁶ W. Leontief, "Implicit theorizing: a methodological criticism of the

formal errors but rather in the tautological character of its results. Nothing whatsoever is gained if we absorb unsold consumers' goods into investment in order to achieve the identity of S and I . This identity applies only to *things*,⁷ to the unconsumed output of the period. But it is the nature of the unconsumed output which is most interesting, and "it is clear that from the point of view of economic activity an increment of wealth due to people going without (already produced but unsalable consumers' goods) is on quite a different footing from an increment of wealth due to more production."⁸

Thus we have to accept Lutz's⁹ conclusion that the Keynesian definitions of S and I are neither useful for handling the problems of dynamic changes nor for dealing with the problem of credit policy. Fortunately enough, Keynes and his followers have not been quite consistent in the use of their new terminology and have actually supported their implicit theorizing by quite an effort towards explicit theorizing, for example by the distinction of the actions of individuals singly as compared with the actions of all individuals collectively (planned saving versus real saving),¹⁰ by the explanation of the working of the

Neo-Cambridge School," *Quarterly Journal of Economics*, Vol. 51, 1937, pp. 337ff.

⁷ See M. Curtis and H. Townshend, *Modern Money*, p. 113.

⁸ Curtis and Townshend, *ibid.*, p. 114.

⁹ F. A. Lutz, "The outcome of the saving-investment discussion," *Quarterly Journal of Economics*, Vol. 52, 1938, p. 613.

¹⁰ For attempts to combine the loanable funds theory with the saving equals investment proposition see the Swedish *ex ante* and *ex post* analysis. *Ex ante* saving and investment are planned and may differ from each other in the same manner described by the loanable funds theory. *Ex post* (that is, looking back upon completed facts) saving and investment are equal in the sense that unconsumed output always has to be equal to investment. See G. Myrdal, *Monetary Equilibrium*, p. 45f.; B. Ohlin, "Some notes on the Stockholm theory of saving and investment," *loc. cit.*, p. 425. The best summary of the extended discussion on saving and investment is to be found

multiplier which makes S equal to I ,¹¹ and by the consideration of changes in the level of income and employment.

3. KEYNES'S CRITICISM OF THE LOANABLE FUNDS THEORY OF INTEREST

As to the important role played by hoarding and dishoarding in the loanable funds theory of interest, the Keynesians are convinced that the concept of hoarding (as used by Robertson and others) is all wrong because hoarding simply cannot increase or decrease as long as the amount of money remains the same.¹² If it is true that money always has to be in somebody's cash balance, then it is impossible that the total amount of cash balances in the beginning and at the end of the period under consideration can differ, and the tendency of one person to hoard must of necessity be offset by somebody else's dishoarding.

Our discussion in chapter 6 has shown that it is impossible to dispose of the problem of the velocity of circulation of money by the truism that all money in existence is at any time in somebody's cash balance. The velocity of circulation of money was defined as the number of times a unit of money passes between these cash balances during a given period. Thus the total quantity of money may well be the same in the beginning and at the end of the period, but the velocity of circulation of money may nevertheless have changed. And

in chapter 8 of the second and revised edition of G. von Haberler, *Prosperity and Depression*, pp. 168-254.

¹¹ This function of the multiplier is especially stressed in Joan Robinson's, *Introduction to the Theory of Employment*. For a discussion of the multiplier see chapter 18.

¹² See, e.g., *General Theory*, p. 174; A. P. Lerner, "Mr. Keynes' General Theory of Employment," *International Labor Review*, October 1936; Joan Robinson, *Introduction to the Theory of Employment*, p. 14f. For a criticism of Keynes and Lerner see Myra Curtis, "Is money saving equal to investment?," *Quarterly Journal of Economics*, Vol. 51, 1937, pp. 612-614

it is this change in the velocity of circulation of money which is partly caused by hoarding and dishoarding.

Keynes himself suggests the distinction between "active" and "idle" balances.¹³ An increase in idle balances at the expense of active balances is hoarding and results in a reduction in the velocity of circulation of money. The time duration of the idleness of money (i.e., the average period of rest between two transfers) might change, changing at the same time the supply of loanable funds. It is one of the inconsistencies of Keynes's theory that "hoarding," though impossible by definition, has assigned to it an important role. It is the propensity to hoard, the desire for increased liquidity, which leads not to greater hoards (since this is impossible as long as the quantity of money remains the same), but to an increase in rates of interest. These increased rates of interest decrease investment and thus the amount of money which is needed to satisfy the transaction motive for liquidity. What can be explained directly by changes in the velocity of circulation of money has to be construed in a cumbersome way to be the result of changes in total income.

Keynes was correct in criticising the classical theory of interest for its neglect of the influence of changes in the level of income upon the supply of savings. His criticism is not correct, however, if it means to say that the loanable funds theory of interest is not able to consider the effects of changes in income upon the rate of interest without being guilty of circular reasoning. It is not circular reasoning to say that income is influenced by investment, investment by rates of interest, rates of interest by the supply of loanable funds, the supply of loanable funds by saving, and saving, in turn, by the income received in the last period. Furthermore, Keynes's own theory which makes the rate of interest dependent on the liquidity preference makes it actually dependent on the total

¹³ *General Theory*, p. 147.

income which determines the amount of money needed for the satisfaction of the transaction motive. "Thus, if the supply curve of saving is on the wobble when the demand curve shifts, so is the 'liquidity preference' curve."¹⁴

Not able to accept the propositions of the loanable funds theory, Keynes has to look for another explanation of the rate of interest. "The rate of interest is not the 'price' which brings into equilibrium the demand for resources to invest with the readiness to abstain from present consumption. It is the 'price' which equilibrates the desire to hold wealth in the form of cash with the available quantity of cash . . . The rate of interest is the reward for parting with liquidity."¹⁵ It "depends on the demand and supply of money" and, if we mean by hoarding "the holding of idle balances," then, in Mr. Keynes's own words, the "theory of the rate of interest might be expressed by saying that the rate of interest serves to equate the demand and supply of hoards—i.e., it must be sufficiently high to *offset* an increased propensity to hoard relatively to the supply of idle balances."¹⁶

4. SHORTCOMINGS OF THE LIQUIDITY PREFERENCE THEORY OF INTEREST

Without the intention of giving anything like a full account of the shortcomings of the liquidity preference theory of the rate of interest, attention should be drawn to a few important points.

If the demand for money is a demand for idle balances and if interest is the price for parting with liquidity, then it is quite clear that we are not allowed to include anything but cash balances in the supply which satisfies the desire for liquidity.

¹⁴ D. H. Robertson, "Some notes on Mr. Keynes' general theory of employment," *Quarterly Journal of Economics*, Vol. 51, 1937, p. 186.

¹⁵ *General Theory*, p. 167.

¹⁶ J. M. Keynes, "Alternative theories of the rate of interest," *Economic Journal*, Vol. 47, 1937, p. 250.

The reader of Keynes's *General Theory*, however, will be astonished to be invited to "draw the line between 'money' and 'debts' at whatever point he thinks is most convenient for handling a particular problem." He is allowed to include in idle balances "any command over general purchasing power which the owner has not parted with for a period in excess of three months."¹⁷ Thus we may include in the idle balances a most substantial part of the supply of working capital. Since interest is paid for this supply at a rate which often exceeds the long-term rate, it follows that people are paid a high rate of interest though they do *not* part with liquidity.

The business motive for liquidity is defined as the holding of cash "to bridge the interval between the time of incurring business costs and that of the receipt of the sale-proceeds."¹⁸ Again it is evident that cash balances get entirely mixed up with the widely different concept of working capital, this time not on the supply side but on the demand side.

An additional demand for cash arises, according to Keynes, "during the interregnum—and during that period only—between the date when the entrepreneur arranges his finance and the date when he actually makes his investment."¹⁹ This demand "is automatically at an end as soon as the finance is expended."²⁰ Although this is consistent with the liquidity preference theory, it certainly contradicts the preceding statement respecting the business motive and is indicative of the confusion which is created by shifting at will from idle balances to working capital and back.

The demand for loanable funds is also always a demand for money; and the process of investing consists in spending

¹⁷ *General Theory*, p. 167.

¹⁸ *General Theory*, p. 195.

¹⁹ J. M. Keynes, "The 'ex-ante' theory of the rate of interest," *Economic Journal*, Vol. 47, 1937, p. 665.

²⁰ J. M. Keynes, "Mr. Keynes and 'Finance,'" *Economic Journal*, Vol. 48, 1938, p. 320.

money. The demand for cash on the part of the entrepreneur is, then, reduced (as far as this particular investment is concerned) until the time when the loan has to be repaid. The demand for loanable funds as working capital, on the other hand, is dependent on the time duration of the period of finance and the period of production.

Statements referring to the demand for idle cash balances and statements referring to the period for which loanable funds are required are *both* important, especially since the supply of loanable funds through the process of collective credit creation is dependent on the available cash reserves. But it is the contestable one-sidedness of Keynes's liquidity preference theory of interest that he restricts the determination of the structure of interest rates to one part of the credit market, which, though important, is not inclusive enough. The supply of and the demand for cash are factors among many others which determine the rates of interest by which they are, in turn, equated. It is, in a way, correct to say that interest is the price paid for parting with liquidity, because hoarding is one of the determinants of the supply of loanable funds. But in excluding all the other factors determining rates of interest Keynes becomes at least as one-sided as the old classical theory which was occupied exclusively with savings as the single source of the supply of loanable funds. As Robertson has pointed out, "the fact that the rate of interest measures the marginal convenience of holding idle balances need not prevent it from measuring *also* the marginal inconvenience of abstaining from consumption. Decumulation, as well as keeping-hoarded, is an alternative to keeping-invested. Such loose phrases as that interest is not the reward of not-spending but the reward for not-hoarding seem to argue a curious inhibition against visualising more than two margins at once."²¹

²¹ D. H. Robertson, "Alternative theories of the rate of interest," *Economic Journal*, Vol. 47, 1937, p. 431.

The Keynesian liquidity preference theory cannot explain the level of rates of interest in the long run. It explains factors which are important in times of change (and are taken care of in the loanable funds theory through the monetary concepts of hoarding, credit creation, etc.) Assuming, however, that no change in hoarding would occur for a long time (which would amount to the elimination of uncertainty on which the speculative motive is based) and that just enough money would be created to satisfy the transaction-demand for cash balances in a growing economy, would not, according to Keynes, interest have to disappear altogether? Furthermore, if Keynes is consistent in his proposition that the rate of interest equates the demand for and the supply of money, then he denies himself the means of explaining the time element in credit transactions which plays an important role in the demand for and the supply of loanable funds. It is impossible to explain the co-existence of different rates of interest on the basis of the liquidity preference theory since the rate of interest would have to be entirely uniform due to the perfect uniformity of the cash balances in question. If it seems practicable to use the concept of "liquidity preference" to explain why some assets are more liquid than others and why therefore people are willing to hold them even at a lower rate of interest, then we are arguing rather according to the loanable funds theory which considers the time duration of investments as well as the risk involved.

Chapter 19

THE CREDIT MARKET

1 THE SECURITY SYSTEM

We have not tried to give an exact definition of the term "credit," and it is doubtful, indeed, whether such a definition should be attempted at all in view of the variety of uses actually made of the word. Token money is called credit-money because it rests on the confidence of the public. Money-creation is said to be a creation of credit increasing the supply of loanable funds which again are called "credit,"¹ probably as an abbreviation of the statement that loanable funds are the object of credit transactions which consist in "the transfer of purchasing power or of valuable goods and services in exchange for the promise of repayment in the future."² Often we find credit defined as the exchange of present against future goods, while again other definitions boil down to a virtual identity of "credit" and "inflation."³

Without a credit market to bring together the demand for and the supply of loanable funds, savings as well as entrepreneurial initiative would easily run to waste. It is the function of credit to overcome those hindrances of the capitalist economy which are caused by the private ownership of the means of production, because it is only by chance that the disposal of the means of production through ownership coincides with entrepreneurial initiative.

¹ E.g., by Bertil Ohlin, "Some notes on the Stockholm theory of savings and investment," *Economic Journal*, Vol. 47, 1937.

² Luthringer, Chandler, Cline, *Money, Credit and Finance*, Boston, Little, Brown & Co., 1938, p. 54.

³ See J. Schumpeter, *The Theory of Economic Development*

The inter-personal transfer of purchasing power often takes place in the form of purchases and sales of commercial paper and securities. Therefore we could word what we have to say about credit transactions in terms of purchases and sales of "claims." These claims can be called credit instruments. The representation of credit contracts by transferable certificates is of the utmost importance for the modern economy. The duration of the period of production, which is partly determined by the durability of the producers' goods,⁴ makes it necessary for credits extended to business firms to be for long terms since repayments have to be geared to the technical schedule of amortization of the fixed capital. In many cases, however, if people in a position to offer loanable funds should have to wait for repayment until all durable goods used by an industry are fully "amortized," they might be deterred from offering the funds at all were it not for the development of what some writers have called "security capitalism."⁵ This development rests on the simple device of making credit commitments transferable from one person to another. Credit instruments may be bought and sold at any time, thus making it unnecessary for an individual to be tied up indefinitely in one particular investment.

Once the certification of the receipt of money capital, representing either loanable funds or already produced capital goods, is divided into transferable units, it becomes easy for an individual not only to discontinue engagements at any moment of time but also to diminish the personal risk of investment through the buying of a variety of those units representing different enterprises. Business firms, on the other hand, can procure the necessary amount of credit by attracting smaller sums of money from a large number of persons.

⁴ See chapter 16, section 4.

⁵ See G. W. Edwards, *The Evolution of Finance Capitalism*, New York, Longmans, Green & Co., 1938.

The principal advantages of the security system, therefore, consist in the following

(1) The borrowers receive long-term credits necessitated by the time-duration of modern processes of production

(2) Nevertheless, the individual creditor is not forced for any length of time to continue his connection with the debtor or user of the capital. He may sell the credit instrument to another person, who, through this purchase, takes the seller's place in the waiting process

(3) Thus the creditor can switch from one investment to another. He can, furthermore, diversify his risk by buying various credit instruments

(4) The relatively low risk and the possibility of discontinuing the connection with one particular enterprise, or of liquidating "investments" altogether, induce many persons to supply loanable funds for long-term purposes when their liquidity preference would otherwise restrict the supply of loanable funds to short-term purposes

(5) The borrower contacts a large number of would-be creditors thus being able to aggregate large amounts of loanable funds as they are needed in modern mass production

(6) The system of buying and transferring claims is also useful in the case of short-term commercial paper because it allows a widening of the market, a reduction of risk, and an increase in (individual) liquidity

If we define the credit market as a market in which claims are traded, the *supply* of loanable funds is represented by the *purchase* of claims whilst the *demand* for loanable funds takes the form of *sales* of claims. This is merely a matter of terminology. But it is important to distinguish two different cases of purchases and sales of claims. If newly issued securities are offered for sale, they constitute a new demand for loanable funds on the part of entrepreneurs (or public bodies) who want to embark on time consuming processes. If already existing securities are offered for sale again and again, they

constitute a demand for money on the side of the seller. The buyer takes the place of the seller, and the effect of the whole transaction on the credit market is dependent on the further actions of the seller. If he uses the money for consumption purposes, he is dissaving, and the case can be treated as if there had been no new supply of loanable funds. The rate of interest is genuinely influenced only by the newly issued claims which increase the total demand for loanable funds and by the sales of existing claims for purposes of dissaving.

The market for securities, the stock exchange, is a highly organized market whose turnover is artificially enlarged by stock and bond speculation. The importance of the stock market and of stock speculation can hardly be overestimated.

(1) "Professional security speculation creates what may be called a reservoir for the easy equalization of supply and demand at any moment of time, so as to prevent wide fluctuations in security prices due to fortuitous circumstances. Without this 'reservoir for stray securities' it is unlikely that all shareholders who wanted to realize their securities would be able to find investors who were willing to buy them just at the right moment."⁸

(2) Because of this equalizing effect on prices stock speculation takes on its shoulders a considerable part of the risk the public would otherwise have to bear. Risk-bearing is made a special economic function.

(3) Stock speculation performs the task of carrying newly issued securities until they are purchased by the public. Only gradually will the new securities be bought directly with the savings of the permanent holders. It is an important function of stock speculation to bridge the time interval between new issues and their gradual absorption by the genuine investors.

(4) Since the speculator wants to profit from his guessing earlier and better than the public, he will buy in order to be

⁸ Fritz Machlup, *The Stock Market Credit and Capital Formation*, p. 23.

able to sell when he expects the public to come into a buying mood, and vice versa; that is, he tries to consider carefully in advance what may influence the decisions of the prospective buyers and sellers, e.g., security, rentability, general economic development, money market situation, credit conditions, etc. In acting earlier than the public he may exert an equalising influence on the development of security prices by spreading price changes over a longer period of time and by counterbalancing to some degree the actions of the public. But this certainly does not mean to say that stock speculators have a wonderful gift of divination.

Many believe that stock speculation, far from smoothing down price fluctuations, entices the public to gamble, thus raising security prices exorbitantly and causing, later on, crisis and depression. Vague statements like these are of little use. To be sure, the stock exchange may become a disequilibrating rather than an equilibrating factor in the economy. But when security prices increase rapidly, we have reason to assume that it is not only excesses of speculation but also an excessive supply of loanable funds out of inflationary sources which is responsible for the dangerous development which is bound to break down as soon as the artificial supply of loanable funds is reduced or stopped.

Security speculation has been attacked on the ground that it diverts capital from potentially productive employments. Loanable funds are absorbed, we are told, by security trading and do not reach, or reach too late, the business man who wants to invest the loanable funds in productive processes.

Some versions of this argument arise from a misconception of the way funds are used in the security market. Loanable funds used by speculators for the purchase of securities are passed on to the sellers and are not tied up for the period of time during which the securities are held by the speculators. The purchasing power has not disappeared. What happens after this depends on what the sellers of the securities do.

Using Professor Machlup's⁷ penetrating analysis we may distinguish the following cases:

If the speculator has bought newly issued securities, the issuing corporation will receive the sales proceeds and will use them in one of the following ways:

(1) To repay bank loans. The supply of loanable funds is not reduced.

(2) To buy already produced means of production (capital goods). The loanable funds are now in the hands of the producer of these capital goods, that is, his working capital has been liquidated through the sale of his output.

(3) To produce capital goods, which is investing in the fullest sense of the word.

(4) To carry through plans (2) or (3) later on, supplying the loanable funds in the meantime as short-term credits. The total supply of loanable funds is not reduced.

(5) To buy other securities (as in the case of an investment trust). If these securities are newly issued, cases (1) to (5) become relevant again.

If the speculator bought old securities, the seller uses the proceeds also in one of the five ways indicated above. The seller of old securities may, however, dissave by using the sales proceeds for consumption purposes. Dissaving reduces the supply of loanable funds, but it is, then, dissaving and not security speculation which is to be blamed.

Assuming for the moment that the stock exchange can really "absorb" loanable funds we have to ask in which form the capital is absorbed, whither it goes, and where it is hiding until it finds, eventually, its way back into productive uses. To this question the answer is sometimes given that capital is absorbed by an increase in security prices. If security prices rise by 100 per cent, this increase in value, according to these views, has to be financed by (call) loans. Loanable funds have

⁷ Machlup, *op. cit.*, chapter 3, section 22.

been absorbed; they are no longer available for productive services.

The fallacy of this argument lies in the fact that, whatever security prices may be, the purchasing power of the buyer is not lost but immediately put at the disposal of the seller. The purchase of securities, old or new, at high prices or at low prices, never takes away more purchasing power from the buyer than is placed in the hands of the seller. The increase of security prices, therefore, does not and cannot absorb the tiniest amount of loanable funds. Those who call the increase in security prices an increase in money income—which is not spent for consumption and hence “saved”—have to assume that exactly this same amount is “invested” in the higher-priced assets.⁸ Whether one adopts such a terminology is a matter of taste, but it must not lead to the conclusion that loanable funds have thereby been “sterilised.”

The proposition that security speculation does not absorb capital must not necessarily imply that it can never tie up any part of the money supply. An increased stock exchange turnover increases T and, if all other things (especially transaction velocity of circulation) remained unchanged, it could lead to a fall in the level of prices. But as far as the “inside business” of the stock exchange is concerned, that is, the transactions within a more or less closed circle of persons, the turnover of securities is carried through most frequently not with the use of money but by a clearing or cancellation process. This is the more so if the business of several days is brought together in one settlement period; but in any case it is not the gross value of securities traded which has to be paid for, but just the “differences” (which need not rise with the turnover figures).⁹

⁸ This mistake was made by Harold G. Moulton in his book, *The Formation of Capital*, Washington D. C., The Brookings Institution, 1935. See Professor Machlup's criticism, *op. cit.*, chapter 9.

⁹ See Machlup, *op. cit.*, chapter 6, sections 38 and 39.

It is true on the other hand that these arguments do not apply to the transactions between the public and the stock exchange. If payments connected with the transfer of securities between brokers and customers took no time at all, then it would be correct to assume that they are irrelevant. But the delay caused by a chain of these transfer payments must not be neglected, and it therefore has to be admitted that money may be tied up in connection with an increasing speculative mood on the side of the public. This speculative mood, however, is most likely to develop under conditions of inflation. Thus Professor Machlup comes to the conclusion that the money tied up on the stock exchange means nothing but a delay in the productive employment of funds from inflationary sources.¹⁰

Even if Professor Machlup's convincing conclusion were not true, we could come to the practical result (e.g., from the standpoint of a neutral monetary policy) "that if the stock exchange should require an increase in the amount of money in circulation the increase could and should be made by the creation of new means of payment."¹¹

2. BANKS AS INTERMEDIARIES

That there is no generally accepted definition of the term "bank" is not astonishing in view of the many different functions performed by banking institutions, and considering also the different sources of the supply of loanable funds. Professor Somary, author of an outstanding book on banking policy,¹² says that the banks are institutions whose purpose is to borrow. According to Professor Somary it is only on the side of the liabilities that we find what is common to banking institutions, for they differ widely as to organization and national tradition

¹⁰ Machlup, *op. cit.*, section 48.

¹¹ Gustav Cassel, "Does the stock exchange absorb capital?" *Skandinaviska Kreditaktiebolaget*, 1929, p. 23f.

¹² Felix Somary, *Bankpolitik*, Tübingen, Paul Siebeck, 1930, p. 4.

as far as the assets are concerned. Macleod,¹³ on the other hand, said that a bank is not an institution which borrows, and lends out, money, but an institution for the creation of credit. And, similarly, Professor Hahn insists that there is only one cause for the coming into existence of bank accounts, namely, the previous granting of credit. The creation of credit, he says, is primary to the formation of deposits.¹⁴ If we adopted the Macleod-Hahn proposition, nothing whatsoever would be left of Professor Somary's definition.

It is certainly not the ultimate economic function of the banks either to borrow money or to create money. Banks borrow money and create money in order to make these loanable funds available to those demanding them. It would, however, not be advisable to overstress the function of banks as intermediaries because it might make us forget that part of the supply of loanable funds has been created, so that up to this amount the banks are "original" creditors and not only intermediaries.

It is necessary to distinguish at least three main types of banks. All three have in common the fact that they may be intermediaries on the credit market, but they may differ widely in other respects.

(1) Commercial banks are institutions which create credits and extend credits out of funds either owned by them or borrowed from others. Their deposit liabilities are, in the main, liquid funds (cash balances) which can circulate because they are payable on demand and are subject to withdrawal and transfer by check.

Since we have already discussed the specific monetary problems of the commercial banks (the problem of collective credit creation in particular),¹⁵ it seems advisable to emphasize

¹³ Macleod, *The Theory of Credit*, London, 1898, p. 594.

¹⁴ Albert Hahn, *Volkswirtschaftliche Theorie des Bankkredits*, Tübingen, Paul Siebeck, 1930, pp. 25ff.

¹⁵ See chapter 4, section 3.

in the following pages the commercial banks' functions as credit intermediaries.

(2) In this respect they are similar to the savings banks which are institutions which depend in their investment operations strictly on the savings of their lending customers and are not able to create credit. They are not able to create credit because their deposit liabilities cannot circulate. If savings banks grant loans, they lose reserve balances; if commercial banks (all taken together) grant loans, they lose no reserves but create deposit liabilities.

(3) The function of investment banks is to help corporations in raising long-term funds. They study the long-term capital needs of their customers, analyse the conditions surrounding new security issues, borrow short-term funds to be able to procure the necessary capital on a specified date with which to purchase the issue of securities, and repay the short-term loans as soon as the securities are sold. Thus it is possible to call investment banks wholesalers and retailers in securities.

The transfer of present purchasing power in exchange for the promise of repayment in the future would be very clumsy if it were left to mere chance whether those supplying and those demanding loanable funds should meet each other. It becomes an important economic function to borrow loanable funds in order to lend them out again. One main problem of the organization of credit is the establishment of agencies which are centers of the trade in credit into which the available short-term funds are streaming and from which they are conveyed through those channels where they will be used most effectively.

Once these centers, the banks, are established, the transfer of loanable funds is greatly facilitated. Many persons are now induced to part with perfect liquidity, that is, to refrain from hoarding in the form of cash whatever they do not spend for consumption. Most persons who do not intend to consume their whole income would nevertheless hesitate to offer the

unconsumed part as loanable funds even on the short-term market if they themselves would have to look for borrowers who might be suitable as to the amount available, the time duration of the credit, and the risk involved.

That these problems are partly solved by the security system and by the activities of investment banks has already been mentioned. Equally important is the establishment of institutions with the special function of acting as intermediaries for short-term funds. Those supplying the short-term funds are now no longer connected with specific borrowers and enjoy the advantage of the diversification of investment which is implied in the function of the commercial or savings banks. Smaller funds of a great number of persons are pooled and then distributed. That the individual supplies of loanable funds should lose their individuality is essential. This does not mean to say that the banks could invest the pooled funds without considering the intentions of the depositors. The banks can estimate with reasonable accuracy, however, what part of the pool will remain constantly at their disposal and is not in danger of withdrawal.

As distributors of the pooled short-term funds of the economy the banks assume a vital responsibility for the wisdom with which the resources of the economy are used. The loanable funds tend to be allocated to those who are able and willing to pay the rates of interest which equate the demand for and the supply of loanable funds in the different fields of the credit market. It is to be assumed in theory that it will be the more successful business men, those who anticipate profits higher than the equilibrium rates of interest (and the consumers who are willing to pay this price for consumption in excess of their incomes), who will be able to secure the necessary loanable funds. But real life is different from the assumptions of pure theory, and it may sometimes be advisable to alter the rate of interest deliberately as a means of serving certain purposes of general economic policy. As long as we

discuss the strictly private sector of a capitalist economy, it is in order to stress the selective function of the rates of interest, though a substantial part of the supply of loanable funds is directed today more or less artificially into investment channels which would have been excluded by the market rate of interest. The immense number of public and semi-public credit institutions all over the world is evidence of a tendency towards an increasing unwillingness to depend on free market forces alone in determining the ways in which the loanable funds of the economy will be employed.

3. LIQUIDITY PROBLEMS

The bank, in its capacity as an intermediary, has its special liquidity problem. As intermediary the bank is dependent on the changing intentions of its depositors and on the business conditions facing its borrowing customers. This means that assets should not be chosen merely according to the principles of profitability and security. Even more important is the timing of the assets with respect to the time-structure of the liabilities.

An exact correspondence in the time distribution of assets and liabilities of a bank is neither obtainable in practice nor is it a desirable operating principle. Indeed, the aggregating of cash balances both in demand and time deposit accounts in the banks makes it possible for loanable funds which are short-term credits from the standpoint of each individual depositor to be looked upon as longer-term or even long-term credits from the standpoint of the banks. It is therefore perfectly in order when the banks use these funds to satisfy the demand of their borrowing customers for working capital.

A very influential school of thought has asserted that institutions for short-term credit should be strictly separated from those for long-term credit and that to put an ever increasing emphasis on that division is the way in which to reach perfection of the banking system. But this proposition has only a

superficial factual basis. The time-consuming processes of production cannot always be clearly divided into short-term processes and long-term processes so as to guarantee the self-liquidation of short-term credits under all circumstances. The liquidity of short-term funds rests on the saleability of the products and that again depends very often on a sufficient supply of long-term funds.

Laws which force commercial banks to divorce themselves from investment banking affiliates¹⁶ may prevent certain unsound practices but should not be considered as the simple solution of a most intricate problem. Nor can one and the same rule be applied with equal advantage to different national credit systems. Where industry is largely built on a family basis, the capital being provided privately and expanded out of profits, or where a strong capital market takes care of the long-term financing of industry, it may be possible and advisable to limit the activities of commercial banks more or less to the financing of trade and commerce.¹⁷ A rapid development of industrial production, on the other hand, makes industry often depend on the financial support of the commercial banks for long-term as well as for short-term financing. It is the very function of the banking system, in this case, to rake together even the smallest amounts of loanable funds in order to build up the huge sums necessary for the instruments and equipment of modern industrial plants. Once the commercial banks finance the demand for fixed as well as for working capital, their liquidity depends on their own successful performance of the function of investment banks by buying from their borrowing and selling to their lending customers those securities which will re-establish the banks' liquidity. This method of combining the functions of

¹⁶ As the Banking Act of 1933 in the United States.

¹⁷ This was, roughly, the English development. See *Committee on Finance and Industry Report (Macmillan Report)*, p. 162.

commercial and investment banks has certain advantages for the banks as well as for their borrowing and lending customers.¹⁸ These advantages should not be forgotten by those who advocate complete separation of commercial and investment banking and who do not realize clearly enough that the liquidity of short-term funds depends very often on successful financing on the long-term market. The following sections on the theory of the credit market will help to clarify this proposition.

That the pooled short-term funds of commercial (and savings) banks are used for investment in securities and not only for short-term loans to business men is a well-known fact which shows that a clear-cut segregation of short-term and long-term credits is a theoretical ideal rather than a practical proposition even if commercial and investment banking has been separated. In case of investment in securities the principle of liquidity is replaced by the principle of shiftability,¹⁹ that is, the possibility of re-selling the assets quickly and with a minimum of loss or expense. But shiftability and liquidity are of a very different quality. Liquidity means that funds are set free again in the normal course of business through the sale of the product (whose production or movement had been financed by the loan). Shiftability merely indicates the ability to get cash by transferring assets—the credit instruments, not the products—to some other person or institution. Shiftability for the economy as a whole would be merely an illusion if all commercial banks tried at the same time to make use of this substitute for real liquidity.

¹⁸ This is, roughly, the German case. See *Macmillan Report*, p. 163f. See also the excellent treatment of the combination of short-term and long-term financing in Adolf Weber, *Depositenbanken und Spekulationsbanken*, Munich and Leipzig, Duncker und Humblot, 1938.

¹⁹ See Phillips, McManus, Nelson, *Banking and the Business Cycle*, New York, Macmillan, 1937, p. 81.

4. MONEY MARKET AND CAPITAL MARKET

The credit market is divided into two main parts: the short-term money market and the long-term capital market. Differences in the rates of interest indicate different supply and demand conditions in the two markets. It is important to notice, furthermore, that the short-term rates are subject to much wider fluctuations than in the case of long-term credits. We shall see that this difference in the behaviour of the rates of interest in the short-term money market and in the long-term capital market is of importance for the theory of the business cycle and is one of the main problems of the theory of the credit market.²⁰

As to the nature of the object supplied and demanded on these two segments of the credit market, the short-term money market and the long-term capital market, most authors are anxious to assert that it is not "money" here and "capital" there which is supplied and demanded, but in both cases capital in monetary form, general power of disposal, or loanable funds.²¹ But different writers are by no means unanimous as to the nature of the objects which are supposed to be identical in both markets. One group is inclined to stress the monetary side of the problem while the other group, not denying the monetary form of the supply, is in favor of a treatment which minimizes the monetary characteristics and stresses almost exclusively the supply of and demand for savings. In other words, one group stresses and the other group minimizes the possibility of credit creation which is supposed to increase the elasticity of the supply of loanable funds on the short-term market, while the long-term market seems to be

²⁰ See F. A. Hayek, *Monetary Theory and the Trade Cycle*, p. 229.

²¹ There are exceptions to this rule, however. Mr. J. M. Keynes, e.g., tries to emphasize the purely monetary character of the credit market as a market of "cash." This is implicit in his theory of interest. See chapter 18.

exclusively dependent on the supply of savings. It is difficult to understand, however, how the two markets can be distinguished by the source of their respective supplies once it is taken for granted that the market object, "loanable funds," is perfectly substitutable in its monetary form, whether it comes from genuine savings or from credit creation.

It may be permissible to argue that loanable funds originating in inflationary sources "should" be used for short-term investment only, so as to be capable of contraction in the event that monetary policy should require it. But it may be difficult or even impossible to prevent such short-term funds from seeping into the capital market since money is constantly borrowed for short periods for the purpose of buying and holding investment securities.²² It should not be forgotten moreover that whenever short-term working capital funds are used to finance the production of durable goods (producers' or consumers'), the liquidity of the short-term funds depends entirely on the capacity of the capital market to provide the long-term funds for the purchase of these goods, that is, its capability to release the working capital.²³

Thus there exists a very intimate relationship between the two segments of the credit market. The persistently large differences in their respective rates of interest must, therefore, be due to obstacles which are important enough to prevent short-term and long-term credits from being mutually substitutable in certain cases and under certain circumstances.

As far as the supply side of the money market is concerned, it is obvious that the funds come from persons or firms who wish to invest their funds for a short time only, either because they hesitate to part with liquidity or because they simply cannot part with the funds for a longer time. But it is not

²² See R. G. Hawtrey, *The Economic Problem*, London, Longmans, Green & Co., 1926, chapter 6, "The capital market," p. 66.

²³ See especially Fritz Machlup, "The liquidity of short-term capital," *Economica*, August, 1932.

merely the possibility of recovering the use of the funds which is decisive but rather the possibility of recovering the funds without expenses or losses. Long-term funds can, of course, always be employed on the short-term market provided that the expense and trouble caused by the finding of new borrowers in short intervals are outweighed by comparatively high short-term rates.

Most writers assume that the money market is predominantly a market for those loanable funds which are needed as working capital while the capital market is supposed to furnish the long-term credit to procure durable capital goods. The distinction between money market and capital market as the market for working capital and fixed capital respectively is superficial and grossly oversimplifies the problem. The minimum of working capital which is constantly needed by business firms constitutes a long-term demand; and, on the other hand, short-term credits may be substituted for long-term credits if long-term funds are not available or available only at a price which is considered too high. The distinction between the two main parts of the credit market according to the purposes for which the funds are intended is therefore a supposition which has a questionable factual foundation.

When the money market is called the market for working capital, it is implied that the duration of the credits should have about the same average length as that of the working capital requirements of the firms drawing funds from the market. This explains, roughly, the relatively short credit periods in the money market and implies that the supply of loanable funds in the money market has the nature of a revolving fund. This is the significance of the term "circulating" capital. The funds used as working capital are supposed to be recovered through the sale of the product. If everything proceeds as expected, the short-term funds are continuously (and almost automatically) returning to the money market. Considering the "revolving" or "circulating"

character of the supply of loanable funds in the money market, it is possible to apply a velocity concept to these short-term funds with the implication that the total supply of loanable funds in the money market during a period of time depends partly on changes in this velocity of circulation. Whatever retards (increases) the velocity of circulation of the short-term funds tends to decrease (increase) the supply of loanable funds in the money market and to influence the short-term rate of interest.

The demand for loanable funds in the capital market is of a long-term nature. The funds, though as a rule transferable from person to person by way of transactions in securities, remain invested in the form of fixed capital until they are released in the form of amortization quotas. The difference between the short-term and the long-term market as to the credit periods is only a difference in degree but is pronounced enough to be a decisive factor. The total amount of funds invested in fixed capital goods is incomparably greater than the amount of loanable funds invested as working capital. A given amount added to, or taken away from, the supply would therefore affect prices much less in the case of the long-term market than would a similar quantitative change in the money market.

The distinction between short-term working capital and long-term fixed capital, commonly used to account for the differences in the duration of the average credit periods in the different sections of the credit market, suggests an explanation of the differences in the pricing processes of the short-term and the long-term market. This explanation will be attempted in the following section. But we have to consider first that short-term demands can be financed through long-term credits and that repeatedly prolonged short-term credits are a feasible (though not necessarily safe or cheap) substitute for long-term financing. The possibility of substituting credits of different maturity for one another indicates again a

tendency to eliminate differences in the short-term and the long-term rate of interest. It has to be explained why the process of substitution stops before full equalization is reached. How lenders and borrowers will be influenced by the different rates of interest and their anticipated changes, how far they will go in substituting one kind of a loan for another, and what will stop this process of substitution before equality of the rates of interest throughout the credit market is reached, depend on a number of circumstances which shall be mentioned briefly.²⁴

Lenders as well as borrowers will be influenced by their anticipations as to the development of the short-term and long-term rates of interest. Lenders, e.g., will offer their funds for a longer period if they feel sure that they can, if necessary, borrow at a low short-term rate. They will, however, prefer a series of shorter loans if they anticipate short-term rates which are high enough to compensate them for the trouble of finding new borrowers. Similarly, the borrowers will choose short-term loans if the rate of interest is low enough (and is supposed to remain low enough) to compensate them for the trouble of finding new lenders, while in the case of long-term loans they may have the problem of disposing of funds which are momentarily not needed. The risks and chances involved in these decisions do not depend only on the anticipated long-term and short-term rates of interest. Risks and chances depend also on the credit standing of the borrower and the anticipations of future profits (e.g., changes in the value of the services of the durable capital goods in question). Considering all these facts we can accept Miss Kock's conclusion that, under equilibrium conditions on the credit market, there is a series of interest rates, each of them being just high enough to balance supply and demand in this special part of the

²⁴ See the excellent studies on the subject by Karin Kock, *A Study on Interest Rates*, London, P. S. King & Son, 1929, and Marek Breit, "Ein Beitrag zur Theorie des Geld und Kapitalmarktes," *Zeitschrift für Nationalökonomie*, Vol. 6, 1935.

market while the magnitude of the differences depends on the estimation made by borrowers and lenders of the risks and chances of a change in interest rates and capital values, of the trouble involved in the continuous renewal of loans, and the cost of holding idle balances.²⁵

That wide fluctuations of the short-term rate are actually possible and necessary in the money market as compared with the much slighter variations of the long-term rate on the capital market can easily be seen when we consider the respective rates as cost and capitalization factors. Professor Machlup²⁶ has made it abundantly clear that the influence of changes in the short-term rate of interest upon average total unit costs is disproportionately small because of the frequency of working capital turnover. Let us assume that in a firm \$300,000 of working capital are turned over three times a year and that the annual production is 100,000 units (produced at a cost of \$900,000 for materials and labor). With a rate of interest of 5 per cent per annum the total interest on the working capital would be \$15,000 and the unit cost \$9.15. A reduction of the short-term rate of interest from 5 to 4 per cent would reduce the interest charge to \$12,000 (that is, by 20 per cent), and the unit cost to \$9.12. A change of only 1 per cent in the cost of labor or material would have influenced unit cost by much more than the assumed 20 per cent change in the short-term rate of interest.

The result is entirely different when the rate of interest is considered as a capitalization factor. A reduction in the long-term rate of interest increases the capital value of the durable instruments of production. If we assume infinite durability of a capital good and if we anticipate that the value of its future services will remain the same in monetary terms, a reduction in the rate of interest from 5 to 4 per cent will

²⁵ See Karin Kock, *op. cit.*, p. 34.

²⁶ See Fritz Machlup, "The rate of interest as cost and as capitalization factor," *American Economic Review*, Vol. 25, 1935, p. 459ff.

increase its value by 25 per cent and may thus be a strong incentive for the production of durable goods.

These figures also show that it may often be advisable for borrowers to use short-term loans in order to postpone new security issues even if the short-term rate lies far above the present long-term rate, provided that a slight fall in the long-term rate (with its favorable effect upon security prices) can be anticipated in the not too distant future.

5. MONEY MARKET AND BUSINESS CYCLE

Working capital and fixed capital are closely interrelated. Fixed capital goods result from production processes financed in part by means of short-term credits. The proposition that the supply of working capital can be considered as a revolving fund stresses the fact that the working capital tends to be automatically recovered from the proceeds of the sale of the produced goods. If the produced goods are capital goods (or consumers' durable goods), we base the assumption of the automatic backflow of the working capital upon the assumption of the actual sale of the product; but this sale depends again on the assumption of a successful financing of the purchase of the durable goods. The long-term financing of the purchase of durable capital goods is the function of the capital market. If the demand for capital goods is such that the capital goods produced can be sold, the short-term funds are released and are again disposable in the short-term market. If it is impossible to sell the goods, the working capital, supposed to be fluid and short-term, becomes "frozen." These are well-known facts. But their implications are often neglected. It is obvious that this process of freezing reduces the normal supply of loanable funds on the money market.²⁷ It is primarily the

²⁷ See Arthur Spiethoff, "Krisen," *Handwörterbuch der Staatswissenschaften*, Vol. 6, 1925, p. 25: "Those commodities which depend on purchase through capital remain unsold because capital is lacking. The most urgent demands of the capital market stream to the money market and make the situation

money market which has to bear the impact of adversely changing conditions on the credit market. The short-term credits on the money market, contrary to original intention, actually become long-term credits, thus reducing the supply in the short-term market which is dependent on the regular return flow of the working capital or, as we may express it, on the continuous turnover of the working capital.

In the opposite case of an insufficient demand for long-term funds (due to a decline in the demand for durable capital goods) it is the short-term market to which the loanable funds have to go, simply for lack of choice. This insufficiency of investment opportunities should, however, be understood in the limited sense that the investors as a whole cannot find enough long-term demand for their funds. These funds are therefore either supplied in the short-term market or hoarded. At the same time the liquidity preference of their owners may be such that the funds would not be supplied on the long-term market anyway. Hoarding may be the result of the fact that even on the short-term market there may not be enough investment opportunities.

It might be asked what it is that corresponds in terms of real goods or productive resources to those loanable funds which flow into the money market or are hoarded because they can-

there even more serious." See also George N. Halm, "Das Zinsproblem am Geld- und Kapitalmarkt," *Jahrbücher für Nationalökonomie und Statistik*, Vol. 125, 1926, p. 14ff. Following these explanations C. Bresciani Turrone writes: "The former (the money market) is the market where short credit is supplied in order to enable entrepreneurs to carry on production, both of consumption goods and of new investment goods. On the second market entrepreneurs demand capital in order to buy durable goods; long-term credit, supplied by saving, thus takes the place of bank credit. The nature of this process has been clearly perceived by Jevons (*The Theory of Political Economy*) when he wrote: 'What capital I give for a spade merely replaces what the manufacturer had already invested in the expectation that the spade would be needed.'" See Bresciani Turrone, "The theory of saving," *Economica*, (New Series), Vol. 3, 1936, p. 21.

not be absorbed by the capital market. Professor Spiethoff²³ suggests that it is unemployment, unused plant capacity, and stocks of goods in different stages of completion which constitute the physical counterpart of those loanable funds which are either "frozen" or hoarded or unsuccessfully offered on the credit market. This shows again that it is difficult if not impossible to distinguish exactly between savings, frozen credits, and hoards.

Our considerations lead to the result that the nature of the long-term capital market is such that disequilibrating forces which might be expected to exert their chief effects in that market are actually shifted to the short-term market which is structurally more sensitive to changes in the demand for and supply of loanable funds.

This happens with a certain degree of regularity during the business cycle. Once time-consuming processes have been started, they cannot easily be stopped again. Often they have to be continued for technical reasons to avoid the complete loss of the already invested funds. Price reactions which would be expected to discourage these processes are in many cases likely not to be strong enough to interrupt undertakings which, unless completed, would be practically worthless. And completion of the technical construction is not even the end of the waiting process. Once durable goods have been produced, there is no choice but to wait for their services and if nobody volunteers to perform this waiting by buying the goods or by offering long-term funds, the short-term funds, used in the production of the goods, freeze and perform, perforce, the function which the long-term funds are supposed to fulfill. Thus it is on the short-term money market that we find the widest latitude in the fluctuations of the rates of interest during the business cycle.

²³ Spiethoff, "Krisen," *loc. cit.*, p. 72f.

Chapter 20

BUSINESS CYCLE THEORY

1. THE PROBLEM OF THE CYCLE

In the following chapters we are interested only in the part which money plays among the forces which cause the business cycle¹ and account for the upper and lower turning points and for the momentum with which revival develops into prosperity and recession into depression.

In turning to the cyclical behaviour of money we do not wish to suggest that the business cycle is a purely monetary phenomenon which would disappear altogether if only the quan-

¹ Business cycles are more or less rhythmic fluctuations of the economy. While it is true that the waves of prosperity and depression cannot be expected always to have the same length and amplitude, they are sufficiently uniform to suggest a typical pattern. That they are not completely uniform can easily be explained by the special historic circumstances of each cycle. We assume that the wave length of the cycle varies from seven to ten years and that the business cycle is superimposed on longer waves which, when on the upgrade, make the prosperity periods more pronounced, and emphasize, when on the downgrade, the depression periods. These longer waves have been ascribed to technological changes, to wars, and to changes in gold production. It is also interesting to note that the fluctuations in building construction show an average length of almost precisely twice the length of the major business cycles (see A. H. Hansen, *Fiscal Policy and Business Cycles*, New York, W. W. Norton & Co., 1941, pp. 19-41). The major characteristics of the business cycle are fluctuations in employment, in output, and in money income. An explanation of the business cycle has to show why the most outspoken fluctuations are to be found in the capital goods industry. Durable consumers' goods like residential buildings, automobiles and electrical instruments, however, will have to be considered in many respects as similar to producers' goods.

tity of money could be controlled appropriately. "The principal and sufficient cause of cyclical fluctuations," said Knut Wicksell, "should rather be sought in the fact that in its very nature technical or commercial advance cannot maintain the same even progress as does the increase in needs . . . but is sometimes precipitate, sometimes delayed . . . Since new discoveries, inventions and other improvements nearly always require various kinds of preparatory work for their realization, there occurs the conversion of large masses of liquid into fixed capital which is an inevitable preliminary to every boom and indeed is probably the only fully characteristic sign, or at any rate one which cannot conceivably be absent. If, again, these technical improvements are already in operation and no others are available . . . there will come a period of depression; people will retain the capital as far as possible in a liquid, available form."²

Wicksell, of course, was fully aware of the monetary implications of the problem. But he thought that they were of only secondary importance "although in real life they nevertheless play an important and even a dominating part in the development of crises."³

In what follows we cannot attempt to give a complete theory of the business cycle. The theory of the cycle will only be developed far enough to serve as a framework for our special task of studying the cyclical behaviour of money. Our earlier discussions have already shown that many problems of monetary theory and policy are closely related to the problem of the business cycle. The most ambitious aim of monetary policy is, as we have already seen, not price stabilization or neutrality of money but optimum utilization of resources.⁴ Modern monetary policy cannot help being business cycle policy, and it is, therefore, imperative to study

² Knut Wicksell, *Lectures on Political Economy*, Vol. 2, *Money*, p. 211.

³ Wicksell, *Ibid.*, p. 209.

⁴ See chapter 10, p. 116.

the part money plays—or may be made to play—during the cycle. Though not the sole cause of the cycle (as the strictly monetary theorists believe), monetary phenomena such as hoarding (dishoarding) and credit expansion (credit contraction) are of crucial importance for the explanation of the cycle, and this implies that adequate monetary management is one of the instruments by the use of which we may be able to control these fluctuations and to reach, or approach, the ambitious aim of optimum utilization of economic resources.

An ideal money economy with complete mobility of all factors of production and completely competitive prices would not know the phenomenon of prosperity and depression. Changes in techniques, in consumption, and in saving or investment would lead to the necessary price reactions and to a regrouping of the factors of production in accordance with the changed data. Savings could not become a disturbing factor since changes in the rates of interest would take care of the necessary identity of saving and investment, thus preventing any deficiency in total demand due to hoarding; nor could increasing productivity, due to improved techniques and increasing investment, create difficulties since competition would translate falling unit costs into falling prices at which additional goods could be sold even if the total purchasing power should remain unchanged in terms of monetary units. Technological unemployment, though a short-run problem, would be absorbed in the long run by the spending of the purchasing power which was set free by the fall in costs and prices, and an increasing population could be supplied with just enough new money to avoid dangerous deflationary tendencies (if deflation could be dangerous at all in a system of such complete mobility).

We know that this picture of the "perfect" money economy is not realistic. The structure of the modern capitalist economy is such that price reactions are often disequilibrating rather

than equilibrating so that further difficulties must arise even without any new change in the outside data.⁵

It has been suggested, therefore, that it is not so much the impulses, coming from outside, but the very nature of the economic system, subject to these impulses, that constitutes the chief problem of the cycle. The analogies of the pendulum and the rocking chair have been used to describe the tendency of the capitalist economy to transform irregular shocks (changing data) into more or less regular fluctuations (business cycles).

It is sometimes suggested that this rocking-chair quality of the capitalist economy is merely due to interference with the free pricing process and the unhindered flow of the factors of production, which prevents the capitalist economy from working smoothly while such interference does not, at the same time, substitute a co-ordinated plan. Some writers have actually advocated the re-establishment of laissez-faire conditions, unhindered by unions, monopolies, central banks, and government deficit spending.

Closer analysis, however, reveals a more complicated situation. It is often very difficult to draw the line between a laissez-faire policy on the one side and conscious or unconscious "interference" on the other. We know that the modern economy could not possibly function without a rather complicated monetary and credit organization, and it is, consequently, very difficult to decide when the actions or reactions of the monetary and credit system can be considered as "normal" or when they have to be branded as "interfering." Even a deliberate policy of laissez-faire in the field of money and credit would have to be a highly complicated management which would attempt to adjust the supply of

⁵ This is how F. A. von Hayek formulates the problem of the cycle: "Why is there this temporary possibility of developments leading away from equilibrium and finally, without any change in data, necessitating a change in the economic trend?" *Monetary Theory and the Trade Cycle*, p. 55.

money with the least possible friction to changes in the data (population growth, increasing industrial integration, increasing propensity to hoard or to dishoard, decreasing or increasing employment, etc.) so as to avoid inflationary or deflationary tendencies. We have already pointed out, furthermore, that the aim of such a laissez-faire policy (which may be price stabilization or neutrality of money) may often be incompatible with the aim of maximum utilization of resources. Which aim we choose in a given situation depends partly on our analysis of the business cycle and of the part money plays, or may be made to play, during the cycle.

For the purpose of such an analysis we shall now examine several major groups of business cycle theories with special emphasis on their monetary implications.

2. MONEY AND UNDERCONSUMPTION

The underconsumption theory is the oldest theory of depression. It has been stated in many different forms. In its earliest formulations it was a theory of general overproduction. As such it was easily refuted by J. B. Say and J. S. Mill⁶ with the argument that all sellers are inevitably buyers and that, should we double the productive powers of the country and therefore the supply of commodities in every market, we should, by the same stroke, double the purchasing power. This statement was basically correct as refutation of the theory of a general overproduction, but it was not able to do away with the monetary implications of the more elaborate business cycle theories. Many of these have the idea in common that, considering the expansion of production due to population growth and technical advance, there must be provided additional purchasing power in monetary terms in order to

⁶ J. B. Say, *A Treatise on Political Economy*, Philadelphia, 1830, chapter 15; J. S. Mill, *Principles of Political Economy*, first edition 1848, London, 1923, chapter 14. But compare with the quotation on p. 394.

preserve equilibrium between production and consumption. The Say-Mill argument was weak in this respect because it took it for granted that either enough money and money substitutes would automatically be forthcoming or that prices would fall rapidly and sufficiently enough to permit the sale of an increased output. The possibility of a deficiency of consumers' demand because of hoarding was brushed aside by the assertion that the seller would be anxious to spend the money which he received because he could not make use of it otherwise. Savings could not be a disturbing factor, according to the classical viewpoint, since the variations of the rate of interest would take care of the necessary identity of saving and investment.

Thus it is not difficult to show that the classical argument against the underconsumption idea was only correct under the assumption of a perfect money economy. Difficulties can arise, however, under the following more realistic assumptions:

(1) That a part of the purchasing power received through the sale of commodities or services is hoarded and does not reappear as demand. A similar statement can be made by saying that part of the money income of the nation has been saved but has not been invested.

(2) That total production has been increased but that the amount of money has not been sufficiently expanded to prevent a fall in prices. That the supply of money would adjust itself automatically to an increased volume of transactions is a myth.⁷ It is evident, on the other hand, that a fall in prices has to be avoided if unit costs have not been decreased.

(3) That even in the case of decreasing unit costs prices may not decrease due to monopolistic influences, so that a stable supply of money would cause the wrong prices to fall (namely prices of commodities whose unit costs of production had not been lowered).

⁷ See chapter 5.

(4) That wages may react with a considerable time-lag and cause a deficiency in consumers' demand.

(5) That, because of the time-consuming character of the processes of production, money incomes increase long before the additional consumers' goods are turned out, with the effect that prices of consumers' goods are first artificially increased and that they drop later on when the processes of production are finished and the consumers' goods begin to emerge.⁸

All these cases have in common the fact that they offer possible explanations of deficiencies in consumers' demand, but they are not underconsumption theories of the business cycle. The basic idea of the underconsumption theory proper is the conflict which arises from the double effect of saving upon consumption on the one side and upon production on the other. It is the decrease in the demand for and the increase in the supply of consumers' goods as the result of saving which seems to create underconsumption and its counterpart, overproduction. Savings are supposed to be even more detrimental to the economy when they are invested than when they are merely hoarded.⁹

This deficiency of consumers' demand as the result of invested savings, however, is of no logical necessity like the deficiency due to uncompensated hoarding. We have to remember that the waiting theory shows how saving performs the function (indispensable under conditions of "full" em-

⁸ Professor Aftalion compares this overstimulation of production to the rekindling of a fire when the time-lag between throwing coal and the reaching of the desired temperature causes one to use such quantity of coal as will give off an intolerable heat once it is all alight. See A. Aftalion, *Les crises périodiques de surproduction*, Paris, 1913.

⁹ For the most famous statement of the modern version of the underconsumption theory proper see Foster, W. T., and Catchings, W., *Profits*, Boston, Houghton Mifflin Co., 1925. For a critique of Foster and Catchings see A. H. Hansen, *Business Cycle Theory*, Boston, Ginn & Co., 1927 and F. A. Hayek, *Profits, Interest and Investment*, London, George Routledge & Co., 1939.

ployment) of reducing consumption in favor of an increased production of capital goods. When these capital goods help to lower the unit cost of production and when commodity prices are actually forced down by competition, then there is no inherent necessity that consumers' demand should be deficient. The underconsumption theory seems convincing because the decrease in consumption is contrasted with an increase in the output of consumers' goods. The two events, however, are not simultaneous due to the very time-consuming character of the processes of production, which require (under conditions of full employment) the process of saving. Thus the decreased demand for consumers' goods will at first be compensated by an increased demand for producers' goods; and when these producers' goods help, later on, to decrease unit costs of production, they lead to the aforementioned decrease in prices and to the setting free of purchasing power for the absorption of the additional output.

Forced saving or a sudden, unforeseen change in voluntary saving can create cyclical fluctuations. But since the underconsumption theory cannot explain why voluntary savings should fluctuate suddenly and violently and since forced saving is obviously a monetary problem belonging to the monetary explanations of the cycle, we can here dismiss the underconsumption theory proper.

3. MONETARY CYCLE THEORY

The proposition that a perfect money economy would not experience cyclical fluctuations rested on the assumption of a "neutral" behaviour of money. Money, if not completely neutral, does away with the rigid interdependence of demand and supply which had been assumed by Say and Mill. And since the conditions of perfect neutrality of money are extremely difficult to fulfill (as shown in chapter 10), it is quite natural that some theorists try to give a (purely) monetary explanation of the cycle. They argue that the introduction

of the modern elastic monetary and credit system destroys the rigid interdependence of supply and demand and causes price developments which are disequilibrating rather than equilibrating.

The basic ideas of the monetary cycle theories can best be grasped if the business cycles are understood as a succession of inflationary and deflationary processes. Prosperity is an inflation caused by artificial credit expansion. If the interest brake fails to operate promptly, if the market rate of interest is kept below the "natural" rate, a cumulative process will be started which leads to such a dangerous disproportionality between capital goods and consumers' goods production that crisis and depression are bound to come. The depression, again, is basically deflationary in character.

A discrepancy of market rate and natural rate of interest can be explained in different ways. According to Ludwig von Mises it is due to the prevailing "inflationist ideology" which forces the central banks into expansionist policies;¹⁰ R. G. Hawtrey suggests that it may be caused by the influence of a gold inflow upon the discount rate;¹¹ and F. A. von Hayek assumes that the difference between market rate and natural rate is the result of the elasticity of the modern money and credit system.¹² This system is able to supply more loanable funds at an unchanged (or insufficiently increased) market rate of interest even when the natural rate is much increased, that is, when business men anticipate higher profits and demand more loanable funds.

If the market rate is kept below the anticipated rate of profit, the demand for loanable funds is greater than the supply of voluntary savings, and the difference is made up by the creation of new money. The newly created funds are inflationary. Whether the price level will increase depends

¹⁰ Ludwig von Mises, *Geldwertstabilisierung und Konjunkturpolitik*, p. 58.

¹¹ R. G. Hawtrey, *Currency and Credit*, p. 155.

¹² F. A. Hayek, *Monetary Theory and the Trade Cycle*, chapter 4.

on the development of the trade volume, but prices will have a tendency to increase sooner or later as the full utilization of resources is approached. Rising prices, however, do not have an equilibrating or checking effect; they rather stimulate the cumulative development. One and the same market rate of interest means a decreasing real or commodity rate if it is corrected for changes in the level of prices and if prices are on the increase. If prices rise by 5 per cent per annum, a market rate of less than 5 per cent becomes, in effect, a negative rate; and a market rate of 7 per cent becomes, in effect, a 2 per cent rate. In other words, what the creditor earns in the form of interest he may lose in the form of a reduced purchasing power of money at the time when the loan is paid back. This lowering of the real rate of interest (through inflationary price rise) leads, other things remaining equal, to an increased demand for loanable funds and to further credit creation.¹³ The anticipation of price increases will, at the same time, reduce saving and increase the velocity of circulation of money (dishoarding).

That an inflationary process can continue until prices are multiplied a trillion times has been shown by the German inflation following the first World War. The inflationary process which is supposed to be the essence of the prosperity phase of a business cycle is of course not of such astronomical dimensions. The monetary theories of the cycle have to show, therefore, why the cumulative process comes to a stop and why it is followed, not by a new equilibrium at full employment but by a deflationary process which is, in turn, the essence of the downswing.

If the gold mechanism is in operation, it is easy to see that credit expansion in any one country that exceeds the expansionist tendencies in other countries will lead to an outflow

¹³ See Irving Fisher, *The Theory of Interest*, New York, Macmillan, 1930; L. von Mises, *Geldwertstabilisierung und Konjunkturpolitik*, p. 51ff., speaks of a positive and negative price premium.

of gold and to credit restriction. Managed paper currencies do not offer this simple explanation. But it can nevertheless be argued that the central bank will, sooner or later, have to stop credit expansion. The inflationary process is dangerous because it leads to disproportionalities in the structure of production which make the process of re-adjustment (depression) worse, the longer it is postponed.

If the expansion of capital goods production had rested on voluntary saving, the process need not have been dangerous, but if it rested on forced saving, it would have to lead to a process of contraction and depression. This is the basic thesis of Hayek's "additional credit theory of the trade cycle."¹⁴ If profit anticipations improve and the demand for loanable funds increases, the commercial banks may expand the volume of loans granted to industry at no increase in the market rate of interest. They are able to do this because the ratio of central bank reserves to bank deposits is not a constant magnitude but in itself a variable.¹⁵ The reserves, furthermore, can be increased through re-discounting. Investment, therefore, increases beyond the limit set by voluntary saving, and a cumulative process begins. Money incomes and the total demand for consumers' goods expand. This gradually alters the amounts of check payments and cash payments in favor of the latter as the boom proceeds, so that an increasing amount of cash is withdrawn from the banks. This again leads to further re-discounting and may finally drive up the market rate of interest, thus rendering unprofitable those investments which were calculated on the basis of the abnormally low market rates. "The determining cause of the cyclical fluctuation is, therefore, the fact that on account of the elasticity of the volume of currency media the rate of interest demanded by the banks is not necessarily always equal to the equilibrium

¹⁴ F. A. Hayek, *Monetary Theory and the Trade Cycle*, chapter 4, sections 7-9.

¹⁵ Even in the case of legal reserve requirements the actual ratio can easily vary due to the existence of larger or smaller excess reserves.

rate, but is, in the short run determined by considerations of banking liquidity."¹⁶

In *Prices and Production*¹⁷ Hayek tries to show how forced saving (credit expansion) changes the structure of production by an artificial increase in investment. This "lengthening" of the processes of production leads to a disproportionality between consumption and investment because the new money spent on investment finds its way into consumers' incomes and increases the demand for consumers' goods. Prices of consumers' goods will rise. This rise of consumers' goods prices and the consequent fall in real wages means a rise in the rate of profit in the consumers' goods industries as compared with the capital goods production. Hayek points out¹⁸ that this is simply a special application of the so-called "Ricardo-effect" to problems of industrial fluctuations. The Ricardian proposition was that a rise in wages will encourage capitalists to substitute machinery for labor and vice versa. Thus, as real wages decrease, entrepreneurs tend to substitute labor for capital, that is, to "shorten" the time-consuming processes of production. It is their endeavour to produce more consumers' goods and to produce them with methods which lead to quick

¹⁶ F. A. Hayek, *Monetary Theory and the Trade Cycle*, pp. 178-179.

¹⁷ F. A. Hayek, *Prices and Production*; see also the critical remarks by A. H. Hansen in *Full Recovery or Stagnation?*, chapter 3.

¹⁸ See F. A. Hayek, *Profits, Interest and Investment*, pp. 3-73. That a rise in product prices will lead to a shortening of the processes of production (or to "less capitalistic methods") is shown by Hayek in the following example. We assume that labor is used in the manufacture of a commodity either in a two-year or in a one-year process. Interest is 6 per cent per annum and the rate of profit is equal to the rate of interest and therefore 12 per cent in the two-year and 6 per cent in the one-year process. We assume furthermore that money wages remain constant but that product prices have risen by 2 per cent. Since product prices have risen by 2 per cent and costs have remained the same (same money wages, same rate of interest), the profits are now 14 and 8 per cent respectively, or 7 and 8 per cent per annum. The shorter process has become more profitable.

results. The "shortening" of the processes of production is equivalent to depression.

This result cannot permanently be evaded by new doses of credit expansion, says Hayek. "For just as the low rate of interest remains effective it will continue, by stimulating investment, further to increase incomes and the demand for consumers' goods: and so long as investment continues to increase, the discrepancy between prices and costs of consumers' goods must become progressively larger till the rise in the rate of profit becomes strong enough to make the tendency to change to less durable and expensive types of machinery dominant over the tendency to provide capacity for a larger output."¹⁹

This interesting theory, though going beyond the scope of a purely monetary explanation of the cycle, is nevertheless closely connected with the purely monetary approach. The connecting link is the assumption that the lengthening of the processes of production is dangerous only if it does not rest on corresponding changes in voluntary saving. As in Wickseil's case it is difficult to decide, however, where saving ends and where dishoarding, the thawing-out of credits, and credit creation begin. It is a shortcoming of Hayek's monetary theory that the prosperity period is not explained with reference to the abnormal conditions prevailing at the end of a depression but rather as the interruption of an equilibrium position at "full" employment.²⁰ Hayek deprives himself

¹⁹ F. A. Hayek, *Profits, Interest and Investment*, p. 33.

²⁰ Therefore he criticizes the present writer for making use "of the old hypothesis that savings accumulate for a time and are then suddenly utilized 'at the moment when the real boom begins.'" Since I did not use the term saving but rather the more inclusive term "capital disposal," my statement was correct. The upturn can be explained more easily if we assume that loanable funds (saved, dishoarded, thawed out, created) are available in unusually large amounts, representing the unused resources. See Hayek, *Monetary Theory and the Trade Cycle*, pp. 204-205 and George Halm, "Das Zinsproblem am Geld- und Kapitalmarkt," *Jahrbücher für Nationalökonomie*

unnecessarily of the possibility of showing why credits can be so easily expanded and why consumers' goods as well as capital goods production can be increased at the same time. Provided that there are idle means of production available, it is not necessary that an increasing demand for consumers' goods should lead to a shortening of the processes of production. It can be argued that, on the contrary, the demand for capital goods rests on an anticipated expansion of the demand for consumers' goods, so that a rise in the latter is stimulating to the former.²¹

Hayek's application of the Ricardo-effect is not convincing because it rests on unrealistic assumptions.²² It cannot be assumed that the factors of production can always be transferred at will from longer into shorter processes of production without frictions and losses. If we could shift the factors of production as easily as Hayek assumes, we could reduce to a minimum the detrimental effects of credit creation. If a disproportionality between producers' and consumers' goods production developed, some capital goods would have to remain idle until proportionality between producers' and

und Statistik, Vol. 125, 1926, pp. 16-34; "Geldtheorie und Konjunkturtheorie," *Zeitschrift für Nationalökonomie*, Vol. 1, 1930, pp. 602-609.

²¹ For a discussion of this so-called principle of acceleration see chapter 21, sections 5 and 6.

²² Hayek does not consider that time-consuming processes, once started, have their own momentum and that the desire to avoid the loss of the already invested funds, by bringing the longer processes at least to a certain technical conclusion, will outweigh the scant inducement to switch to shorter processes. This inducement again rests on artificial assumptions. That real wages will fall as product prices increase is not at all certain since a rise in money wages may well over-compensate the rise in consumers' goods prices. And Hayek's assumption that the Ricardo-effect should work even if the interest rate would remain the same does not consider that the very rise in product prices (on which the Ricardo-effect depends) reduces the real rate of interest, thus inducing more—and not less—investment. See also G. von Haberler's criticism of Hayek's Ricardo-effect in *Prosperity and Depression*, third edition, chapter 13, paragraph 5, pp. 481-491.

consumers' goods was restored by the expansion of production of the latter. It is not likely, however, that investment can be reduced without the development of a dangerous "secondary" deflation which imposes additional losses upon the economy. Unemployment and a general tendency towards higher liquidity, debt liquidation, and distress selling, will lead to a contraction of credit, to decreasing money incomes, and to falling prices. And the more prices fall, the more the real rate of interest increases.

This theory of an additional deflationary burden has found an impressive formulation in Irving Fisher's "debt-deflation theory of great depressions."²³ Deflation caused by debt, says Fisher, "reacts on the debt. Each dollar debt, still unpaid, becomes a bigger dollar. . . . The liquidation cannot keep up with the fall of prices which it causes. In that case the liquidation defeats itself. While it diminishes the number of dollars owed, it may not do so as fast as it increases the value of each dollar owed. . . . Then we have the great paradox which is the chief secret of most, if not all, great depressions: the more the debtors pay the more they owe."

Under these circumstances it can easily be seen that the profit rate will fall below the "commodity" rate of interest, that is, the market rate corrected for the fall in the level of prices. Investment will fall short of savings; credit will be contracted.

4. OVER-INVESTMENT THEORY

Hayek's theory is a monetary over-investment theory of the business cycle. As an example of a non-monetary over-investment theory we shall now attempt a summary of Professor Spiethoff's theory.²⁴ Though not emphasizing the

²³ Irving Fisher, "The debt-deflation theory of great depressions," *Econometrica*, Vol. I, 1933, pp. 344ff.

²⁴ See Arthur Spiethoff, "Krisen," *Handwörterbuch der Staatswissenschaften*, fourth edition, Vol. 6, Jena, 1925. and his articles in *Schmollers Jahrbuch*,

monetary element in the explanation of cyclical fluctuations as much as Hayek or Hawtrey, Spiethoff's theory is, nevertheless, of considerable interest for the student of the monetary implications of modern business cycle theory.

Contrary to Hayek's assumption of a full-employment equilibrium Spiethoff starts his explanation of the cycle with an analysis of the readiness of the economy for an upswing at the end of a period of depression. The later phases of the downswing are characterized by the accumulation of idle money capital which has its counterpart in the "world of goods" in unused plant capacity, high inventories, and unemployed labor and accounts for low interest rates, low prices, and low wages. But this readiness for the upswing does not lead to a re-activation of the unemployed resources unless entrepreneurs anticipate profits. New capital investment will not start without new investment opportunities such as are given by an extension of markets or technological progress.

Assuming, however, that entrepreneurs anticipate profits, a process of re-activation of the unemployed productive resources will be made possible through the expansion of credit. Whether this use made of the idle money capital is described as investment of accumulated savings, as dishoarding, or as credit creation is not quite clear in Spiethoff's theory. Spiethoff stresses the fact, however, that credit expansion from whatever sources is all right as long as it mobilizes available produc-

volumes 26, 27, 33, 42 during the period 1902-1918. A good summary of Spiethoff's ideas is to be found in A. Schweitzer's article "Spiethoff's theory of the business cycle," *University of Wyoming Publications*, Vol. 8, No. 1, pp. 1-30, April 1940. See also A. H. Hansen, *Business Cycle Theory*, chapter 4, and G. von Haberler, *Prosperity and Depression*, pp. 73-81. Very similar to Spiethoff's explanation of the business cycle is Gustav Cassel's in his *Theory of Social Economy*. The following summary is a very free interpretation of Spiethoff's ideas based, however, on an intimate knowledge of Spiethoff's writings. Spiethoff's terminology is quite unusual even in his native German. A translation of his terminology into the terminology used in this volume seemed imperative even at the risk of occasional distortion.

tive resources. Once all available productive resources are re-employed, further credit creation will lead to inflation and cannot overcome the lack of loanable funds which is characteristic of the end of the prosperity.

Once started, the upswing develops in the form of a cumulative process. Investment increases, demand for factors of production increases, prices tend to increase, profits are high, and a high rate of saving out of profits helps to finance further expansion which is, in the main, an expansion of the investment goods industries. This cumulative process, however, has to come to an end which will not be a state of equilibrium. Grave disproportionalities will have developed in the structure of the economy.

The capital goods industry has been over-developed. Spiethoff points out that three economic activities have to be distinguished: (1) the production of investment goods, (2) saving, and (3) the buying of investment goods with savings. Since the producers of investment goods and the persons who save do not know of each other's actions, it is very likely that under the conditions prevailing during the upswing a disproportionality between saving and investment will develop.

During the earlier part of the prosperity period savings tend to outrun production of investment goods, and since investment goods are bought with savings, the demand for investment goods is brisk, their prices tend to increase, profits are high, and out of high profits come new savings which propel the expansion process still further. During the later stages of the upswing, however, the position is reversed. While, with the technical completion of production processes in the investment goods industries, more and more capital goods are turned out, the demand for these goods, which depends on savings, falls off. The situation has now become one of over-investment.

But how does over-investment come about? As wages increase, profits, the source of savings, decrease. And since

Spiethoff does not distinguish carefully between the supply of loanable funds out of savings and out of inflationary sources (at least as long as unemployed factors of production are available), we may add that credit creation may be stopped to avoid inflation when full employment of the factors of production is reached. This reduction of the supply of loanable funds will lead to higher rates of interest, other things remaining equal.

That the entrepreneurs do not anticipate this dangerous development is mainly due to the time-consuming character of the modern processes of production. While the processes are in progress, demand for and prices of investment goods tend to be high. Once the processes are technically completed, we witness the head-on crash of decreasing demand for and increasing output of investment goods.

Spiethoff exemplifies the situation of over-investment by a pair of gloves of which one glove has been lost. The lost glove represents scarcity and the remaining one stands for useless abundance. The over-produced investment goods (the remaining glove) cannot be used because of a lack of complementary goods (the lost glove). Investment goods production is not carried to the point where consumers' goods could be turned out. Further capital goods of an intermediate character are necessary but cannot be produced because of the lack of loanable funds which constitute the demand for everything which is not taken care of by consumers' demand. That savings are no longer available in large enough amounts is due to an increased demand for consumers' goods whose production has not been expanded in proportion to the expansion of investment goods production. The deficiency in the supply of savings is basically a scarcity of the means of subsistence for labor. Could these means of subsistence be made available, the time-consuming processes could be finished, that is, brought to the point where they reach their final aim, the production of consumers' goods.

Now that too many investment goods have been produced, the "suit" has become too big for the body of the economy. A further production of investment goods is, for the time being, out of the question. What savings will be forthcoming during the depression can only be used as loans to business men to cover losses and to hold stocks of goods which cannot be sold. The rest will be used for loans to consumers.

In a barter economy nothing worse than this could happen. We would have to shift the factors of production from the over-developed to the under-developed industries, and the over-produced investment goods would have to be idle for some time. In a money economy, however, a dangerous secondary deflation might easily develop.

Acceptance of an over-investment theory of the cycle does not necessarily mean that we cannot also make use of some very recent explanations of the great depression which can be summarized as under-investment theories. It is interesting to note that Spiethoff himself considers the possibility of an under-investment problem in "mature" economies. Spiethoff believes that the business cycle will disappear in highly industrialized countries which possess all their essential industries. The business cycle is a characteristic feature of an epoch of economic development through which all nations pass. "Saturated" economies will not know the problem of over-investment. They will have to face the problem of lacking investment opportunities.

5. UNDER-INVESTMENT THEORY

The under-investment theory is a theory of depression and stagnation rather than a theory of the business cycle. It assumes that a situation can arise in which investment falls short of saving and in which, because a part of the national income earned is neither spent on consumers' goods nor on producers' goods, the national income is bound to decrease. The under-investment theory tries to show, furthermore, why

an economy may remain at a stagnation level far below the full-employment equilibrium.

According to J. M. Keynes²⁵ a new equilibrium will be found and the downward process arrested when the national income has been decreased far enough, so that the amount of savings forthcoming at this level is so small that it can be absorbed by net investment. If all of the national income earned is spent on consumers' or producers' goods, there is no reason why the national income should shrink any further.

In case there are no profitable investment opportunities to be found at a very low, though positive, rate of interest, the level of the national income will have to go down to the point where the average propensity to consume (that is, the proportion of any given aggregate income which the public wishes to consume²⁶) is equal to one. An average propensity to consume of one means that the whole national income is spent on consumers' goods, that savings are zero and no net investment is required to compensate for savings since no savings are forthcoming at this "basic" level of the national income²⁷ where a given volume of consumption expenditures is self-perpetuating. This point is a point of equilibrium, but a point far below "full"-employment equilibrium. For purposes of theoretical analysis this is the true "rock bottom" of the depression.

The business cycle theories which have already been discussed show why a deflationary process may be started and why it may gather enough momentum to bring the national income down to this lowest point, or, temporarily, even further down. This latter case, however, is a case of disinvestment in which consumption is temporarily higher than the

²⁵ See J. M. Keynes, *The General Theory of Employment, Interest and Money*; Joan Robinson, *Introduction to the Theory of Employment*.

²⁶ A. H. Hansen, *Fiscal Policy and Business Cycles*, p. 227.

²⁷ See A. H. Hansen, *ibid.*, pp. 284-285.

national income. Since replacement, then, falls short of the amount which is necessary to maintain the basic consumption level, gross investment will have to rise again.

The contribution of the under-investment theory lies not alone in the analysis of the downward process. It is rather to be found in the suggestion that the capitalistic economy may lack reliable automatic powers to extricate itself from stagnation near or at the basic income level. The economy may not only hit the rock bottom of the depression, but it may stay there, it is suggested, for an indefinite period, provided that no new substantial investment opportunities are found and provided, furthermore, that we are not willing to replace the lacking automatic forces through government spending and similar policies.

The main argument against the under-investment theory seems to be that there is always available a big reservoir of investment opportunities which can be tapped, whenever necessary, simply by lowering the rate of interest, by removing certain controllable obstacles to private investment, or by forcing a reduction in production cost from a level which does not permit of profitable enterprise. It is assumed that, by making them cheap enough, we can always release investment possibilities which are waiting for their turn in a well-ordered line of decreasing marginal productivity.

The loan rate of interest is supposed to fall sufficiently low because of the pressure brought to bear upon the credit market by the piling up of unused savings. This argument, however, need not be conclusive. It must not be taken for granted that what is not spent on consumers' goods will intensify the pressure upon credit markets and interest rates. Too little consideration is often given to the fact that savings which are not more or less instantaneously invested cause the national income to decrease. If the national income decreases, savings will not only decrease but they will decrease proportionately more than consumption due to the simple fact that people

save a proportionately smaller part of their incomes as they become poorer.

Once we admit that the national income may easily shrink, that the purchasing power for consumers' goods may decline, and that savings instead of pressing upon the credit market may disappear through hoarding or debt cancellation, we also have to admit that the anticipated rate of profit may very likely decline still further. The anticipated rate of profit is not only determined by the quantity and quality of the already existing capital equipment but also by the demand for capital goods which depends, in turn, on the national income, its distribution, the propensity to consume, and the rate of interest. When the national income is contracting while unemployment increases, when over-investment leaves an aftermath of unused capital goods and discourages even normal replacement demand, and when the anticipated profits of yesterday turn out to be the losses of to-day—then it is not at all surprising that what were thought to be lesser investment opportunities in times of optimism are entirely out of the question in times of depression.

We have to remember, furthermore, that "the growth of modern industry has not come in terms of millions of small increments of change giving rise to a smooth and even development" but that "characteristically it has come by gigantic leaps and bounds."²⁸ No wonder that under these conditions the anticipated rate of profit is constantly changing even for merely technological reasons.

A continuous stagnation in our present economic system must be due to the fact or to the belief that opportunities for profitable private investment are lacking so that private investment is not strong enough to use more loanable funds than are supplied by the thin stream of savings forthcoming at the stagnation level.

²⁸ See A. H. Hansen, *Fiscal Policy and Business Cycles*, p. 362. It is interesting to compare this statement with the quotation from Wicksell on p. 373.

The stagnation can only be overcome if the inducement to invest is strong enough to necessitate credit expansion. Credit expansion alone will lead to the re-employment of idle resources, human as well as material, and therewith to the gradual increase in national income.

The strength of the impulses needed to overcome the stagnation depends on the severity of the antecedent downward process, the depth it reaches, and the duration of the stagnation at this level. It is possible that investment opportunities will be frustrated in their effect upon the economy as a whole when they are used too early and in isolation. Using an automotive analogy we may recall that a battery may easily be used up in the vain attempt to start a cold engine.

6. LACKING INVESTMENT OPPORTUNITIES?

That under-investment may be caused by a lack of investment opportunities had already been suggested by John Stuart Mill in a most remarkable passage in his *Principles of Political Economy*²⁹ where he discussed taxes which are taken from capital. In a poor country, says J. S. Mill, it is impossible to impose any tax which will not impede the increase in national wealth since all taxes are in some sense paid out of capital. But he adds that the case may be different in a country where capital abounds and where the spirit of accumulation is strong. "Capital having reached the stage," he writes, "in which, were it not for a perpetual succession of improvements in production, any further increase would soon be stopped—and having so strong a tendency even to outrun those improvements, that profits are only kept above the minimum by emigration of capital, or by a periodical sweep called a commercial crisis; to take from capital by taxation what emigration would remove, or a commercial crisis destroy, is only to do what either of those causes would have done, namely to make a clear space for further saving."

²⁹ Book V, chapter 2, paragraph 7.

J. S. Mill's remarks and their political implications anticipate the most modern trend in business cycle theory.

It has been suggested by Professor Hansen³⁰ that the western world of our generation is undergoing a structural change which is not less basic and profound than the "industrial revolution," that we are passing over a divide which separates the great era of growth and expansion of the nineteenth century from an era in which "the combined effect of the decline in population growth, together with the failure of any really important innovations of a magnitude sufficient to absorb large capital outlays" have—so far—prevented us from reaching full employment. These and other factors (like the lack of new territory into which to expand and the cessation of foreign lending) "tend to make our business recoveries weak and anemic and tend to prolong and deepen the course of depression," so that we are not only confronted with a business cycle problem but with a "secular stagnation," characterized by "sick recoveries which die in their infancy and depressions which feed on themselves and leave a hard and seemingly immovable core of unemployment."³¹

We cannot here try to evaluate the recent discussions concerning the immediate outlook for investment opportunities. But it seems worthwhile to mention some points of more general interest which have been stressed in this controversy.

It has been said that a decline in population growth is detrimental to investment in general since it is the growth of population which provides industry with relatively reliable investment opportunities, especially in housing. The obvious criticism that what is not spent in one way—for raising children—is spent in another way—for an increased per capita standard of living—is met with the argument that "the demand for housing calls for large capital outlays, while

³⁰ See A. H. Hansen, *op. cit.*, p. 349.

³¹ See A. H. Hansen, *op. cit.*, p. 353.

the demand for personal services can be met without making large investment expenditures."³² But it is impossible to decide on purely *a priori* grounds whether increased population provides stronger capital outlets than increased consumption per capita which, incidentally, may well be directed towards durable consumers' goods like automobiles and better housing. It should furthermore be noticed that "the consuming unit for housing (as for automobiles and other consumers' durable goods) is primarily the family or household, not the individual" and that the rate of increase in the number of families can differ considerably from the rate of increase in population growth.³³

As to the effect on saving we have to consider that while declining population growth will probably tend to increase the saved proportion of the national income, it will also cause a changing age structure of the population which in turn decreases savings through larger dissavings by the increasing group of the aged. Considering all these points it is difficult to come to a definite conclusion about the net effect of changes in the age structure of the population on saving and investment. The comparative slowness of these net changes, if any, makes it rather unlikely that they will be of overwhelming importance.

Big investment opportunities such as have been provided by railroads, electric power, and automobiles are unpredictable and cannot be counted upon. Once these spectacular investment opportunities had been more or less exhausted, fear began to grow that such big investment outlets could never be found again. When the major countries of the earth had been provided with a rather dense network of railroads, it seemed doubtful whether the discovery of new processes of manufacture would afford "a remunerative employment

³² See A. H. Hansen, *op. cit.*, p. 357.

³³ *Saving and Investment in the American Enterprise System*, Chicago, Machinery and Allied Products Institute, 1939, p. 19.

of the vast amount of capital created " "The day of large profits is probably past" was the complaint "There may be room for further intensive, but not extensive, development of industry in the present area of civilization"³⁴ We may derive some comfort from looking back on such outbursts of pessimism in the year 1886, but we cannot know how long we shall have to wait for the next revolutionary change, assuming that it will come at all

Therefore it is imperative to find out on which investment outlets we can count independently of wars and epochal innovations It has been said that "the more mature and elaborate a technology becomes, the more likely it is that expansion will occur through thousands of individually minor advances, rather than through a few innovations of a fundamental and revolutionary character"³⁵ There is no denying the fact that the impact of one such revolutionary change could possibly be much more stimulating than an equally large aggregate of smaller innovations But we have to consider, too, that the big new industries—during the time of their growth to maturity—have absorbed more than their normal share of the total demand Automobiles and numerous electrical appliances have been pressed into family budgets at the expense of other commodities and services whose production had to be curtailed or could not expand at a normal rate³⁶ This curtailment again can be considered as a backlog, as an accumulation of unsatisfied wants waiting for their turn until the "parasitic" demand is satisfied and reduced to the magnitude of mere replacement The creation of backlogs as

³⁴ Report of the United States Commissioner of Labor on Industrial Depression, 1886, quoted in *Saving and Investment in the American Enterprise System*, p. 26

³⁵ *Saving and Investment in the American Enterprise System*, p. 26

³⁶ It is possible to relate the decline in population growth to the encroachment on consumers' income of these high expenditures on durable consumers' goods

an aftermath of the building up of big new industries supports the position of those who are somewhat less pessimistic concerning investment outlets during the periods in between big innovations.

More recently there has been observed "a growing importance of technological changes which result in a much smaller demand for capital goods" . . . so that "considerably smaller capital outlays were required . . . to secure the same or even an increased volume of output." On these grounds it has been suggested "that labor requirements per unit of product tend to decrease continuously while capital requirements per unit of product are first increased, as manual operations are progressively mechanized, and then tend to decrease when detail improvements are made on the newly established basic processes."³⁷ The conclusion seems to be that the volume of replacement demand for capital goods is limited or that, if we figure the depreciation allowances without considering these improvements, we can have "a perfectly enormous increase in productive capacity merely by renewing plant and equipment, merely by spending depreciation allowances and not tapping a cent of savings."³⁸ These arguments are correct as far as they go, but stated as above they are likely to imply that a new and additional reason for the discrepancy of savings and investment has been found. This is not necessarily so. These technological developments are primarily designed to reduce unit costs and the price of the product. Thus they increase the purchasing power of the consumer and create new investment opportunities for fixed as well as for working capital.

³⁷ See David Weintraub, "Effects of current and prospective technological developments upon capital formation," *American Economic Review*, Supplement, March 1939, pp. 15, 19, 27, 28.

³⁸ See Alvin H. Hansen's testimony in *Hearings before the Temporary National Economic Committee*, Part 9, *Savings and Investment*, Washington, D. C., United States Government Printing Office, 1940, p. 3542.

Chapter 21

MULTIPLIER AND ACCELERATION PRINCIPLE

1 MULTIPLIER AND INCOME VELOCITY OF CIRCULATION OF MONEY

When newly created money has been spent for investment purposes, it has not exhausted its stimulating effect. We have to assume that a more or less substantial part of the newly created money is respent on consumers' goods by those who earned it. The effect of this re spending of newly created money is discussed in the more recent literature as the *multiplier principle*. *The multiplier principle is one of the most important monetary applications in modern business cycle literature.*

To explain the meaning of the multiplier principle we assume that newly created money has been spent for wages of men newly employed in private or public investments. These wages are now being spent on food, clothing, cigarettes, etc. that is on consumers' goods. The money is received by retailers who place new orders with wholesalers, who again order new consumers' goods from the various producers. The money spent on wages is thus passed on to retailers, to wholesalers and to those producers who participate, directly or indirectly, in the production of consumers' goods. In each of these different steps of production part of the money received is distributed as income among those who contributed to this particular stage of production, while the balance is passed on, as the purchasing price of intermediate goods, to the *preceding stage of production*, where again part of the money is

distributed as income while the rest is passed on, and so on and so forth.

The process of distributing the dollars spent on shoes among retailers, wholesalers, shoe-manufacturers, tanners, cattle raisers, etc., takes time. Some of the money spent on shoes becomes income of the retailer and his employees comparatively soon, but it may take a long time until all of it is distributed backwards among the ever increasing number of people who are contributing somehow to the production of shoes. While the last cent of the original amount of money spent becomes "secondary" income in a remote stage of production and with a considerable time lag, the "secondary" income of the retailer and his employees has already been spent again on consumers' goods and has become "tertiary" income in other people's hands. As these people in turn use the money for the purchase of consumers' goods, the money seeps down again through many productive processes and contributes to the income of an ever widening circle of people working in stores, offices, and factories.¹

These considerations are not new for us. We have already used the successive spending approach to explain the income velocity of circulation of money which we defined as the average number of times a unit of money enters the cash balances of ultimate income recipients during a year.² The multiplier analysis makes use of a similar approach to show that the total effect of an initial expenditure of newly created money upon income may be considerably greater than the original expenditure. But multiplier and income velocity of money are by no means identical. To say that the income velocity is two, means that a complete circuit of money from ultimate income recipient to ultimate income recipient takes, on the average, six months. This period we may call the

¹ See Fritz Machlup, "Period analysis and multiplier theory," *Quarterly Journal of Economics*, Vol. 54, Nov. 1939.

² See chapter 6, section 5, above.

income period. To say that the money-income multiplier is two, means that an initial expenditure of a specified amount of new money will (through secondary effects upon consumption expenditures) eventually, but not within a year, lead to an increase in income of twice that initial amount.

Since both the multiplier analysis and the income velocity analysis use the successive spending approach, it seems as if at least the interval between the successive spendings were the same in both cases. If we call the time interval between successive consumption expenditures the multiplier period,³ we are tempted to treat income period and multiplier period as identical. Since people cannot spend their income, as a rule, before they have earned it, it seems impossible that the multiplier period should be shorter than the income period. Nevertheless, there are good reasons to assume that the multiplier period is shorter than the income period.

Multiplier analysis treats hoarded (as well as invested) savings as "leakages." In case, for instance, only 50 per cent of the money received as income is re-spent in each round on consumers' goods, the multiplier analysis assumes that the other half has leaked out of the monetary circulation. The income velocity analysis on the other hand treats hoarded savings as a reduction in the income velocity and, therefore, as a lengthening of the income period. This is the reason why multiplier period and income period may differ. Since it is a generally accepted practice in the multiplier theory to take care of hoarded savings as leakages, we have to assume that the multiplier period is shorter than the income period in order to avoid double counting.⁴

³ See A. H. Hansen, *Fiscal Policy and Business Cycles*, p. 270.

⁴ See Machlup, "Period analysis and multiplier theory," *loc. cit.*, p. 9: "The possibility that splinters of the new money flow may come to rest through hoarding on the part of successive income recipients is accounted for, in the theory of the multiplier, by the assumption of a dwindling series of derivative incomes; it must not be counted a second time by applying the low income velocity figure."

It should also be noted that the income velocity analysis does not as a rule distinguish between expenditures on consumers' goods and on investment goods while investment expenditures are by definition excluded from the multiplier principle. The income velocity of money, furthermore, refers to the average income velocity of all money in circulation while the multiplier analysis is concerned with the effect of newly created (or newly activated) money and should, therefore, strictly speaking, only refer to the *marginal* income velocity of money.

2. SCHEMATIC ILLUSTRATION OF THE WORKING OF THE MULTIPLIER

To illustrate the working of the multiplier we make the following simplifying assumptions. The initial expenditures (the multiplicand of our multiplier) are continued, so that in each multiplier period \$100 is newly spent. In each succeeding period only one-half of the amount spent (and received as additional income) in the preceding period is re-spent on consumers' goods. This means that the "marginal propensity to consume" (that is, the percentage of an additional increment of income which the public wishes to consume⁵) is one-half. With these assumptions we get the following table:

Multiplier period	Initial expenditure	Successive re-spending (unit: one dollar)				
1	100					
2	100	50				
3	100	50	25			
4	100	50	25	12.5		
5	100	50	25	12.5	6.25	
6	etc.	etc.	etc.	etc.	etc.	etc.

It is obvious that we arrive at the same sum total whether we follow the effects of an initial expenditure (diagonally) through the successive periods or whether we add up (hori-

⁵ A. H. Hansen, *op. cit.*, p. 227.

zontally) the initial expenditure of one multiplier period and the effects, in this period, of the previous initial expenditures. Both series will show, finally, and when the initial expenditures are continued long enough, an increase in income of \$200. Since the initial expenditure was \$100, the income multiplier (which relates initial expenditure and the final increase in money income) is said to be two. Had the marginal propensity to consume (which was one-half in the above illustration) been four-fifths (or the leakages one-fifth), the multiplier would be 5.

If the initial expenditures are continued, the national income approaches its new level rather quickly. In the five periods considered in our table the national income is already increased by \$193.75. It will eventually be increased by (almost) \$200 and remain at its new level as long as the initial expenditures are continued at the rate of \$100 per multiplier period. When the initial expenditures are discontinued, the national income will rather quickly fall back to its original level. The time needed to create this positive or negative effect depends on the length of the multiplier period (which is the average time interval between successive consumption expenditures). The time element is important for the multiplier analysis when we are interested in the rate of increase or decrease of consumption expenditures per period of time under assumptions other than the extremely simplifying one that the total multiplier effect is already reached and constantly maintained.

3. THE "LEAKAGES"

The multiplier principle has often been discussed in its application to "pump-priming"—a "pump-priming" policy implying insufficiency of private investment outlets for savings. In these discussions it was sometimes assumed that all savings should be treated as hoardings because of the lack of investment demand for them.

To-day, however, it is generally accepted that the savings may again be invested. In this case the question arises of how invested savings should be treated in the multiplier analysis.

We have to distinguish between investment of savings which does not increase the rate of investment (because it replaces "primary" expenditures) and investment which increases the given rate of investment. If primary investment (financed by credit creation) is supplanted by investment which is financed out of savings, the multiplicand of the multiplier is reduced. The effect is clearly that of a "leakage." Assuming, on the other hand, that the rate of investment is increased the invested savings can still be treated as leakages. But this does not mean that their effect is entirely ignored; rather they are treated under the so-called acceleration principle which will be discussed in sections 5 and 6 of this chapter. But since both the multiplier and the acceleration principle are determinants of what Professor Hansen has called the leverage coefficient⁶ of initial expenditures, we are merely faced with a terminological decision.⁷

When initial expenditures get lost in the form of hoards and cancelled debts, we have to treat them as leakages (that is, funds which have leaked out of the income stream). Whenever newly created money is hoarded, it cannot re-appear as income in the next round, and the multiplier effect is arrested. Such hoarding can either take place when money has been received as income, or it can happen in any one of the intermediate stages (business balances) through which money passes on its way from ultimate income recipient to ultimate income recipient. Similarly business receipts can be used to pay off old

⁶ Hansen, *op. cit.*, p. 264.

⁷ It is a generally accepted practice to exclude invested savings (if they increase the original rate of investment) from the multiplier analysis. This has its great advantages; but we are driven to the rather artificial construction that invested savings are first considered as leaking out of the monetary circulation and that they are, then, re-created to finance induced investments.

debts rather than to pay for new orders. If these funds are not loaned out again, the effect is the same as in the case of hoarding.

In estimating the amount of debt cancellation it is important not to forget that the re-employed men had to live while they were out of work. If they had to go into debt, they will want to pay off their loans, and what the multiplier effect will be will then depend upon the creditors' actions. It has to be considered furthermore that increased employment may reduce relief payments and that, if these relief payments were financed by credit creation, our "initial expenditures" will be reduced.⁸ This, however, concerns the multiplicand rather than the multiplier.

Expenditures on foreign goods may be considered as a leakage because they increase the income of people living in other countries.⁹ But it is evident that this is a short-run effect only. Increased imports must eventually lead to increased exports. Thus the influence of imports upon the multiplier effect would be retarding rather than reducing, and this temporary leakage may well be compensated or even overcompensated by the multiplier effect of increasing exports due to credit expansion in other countries or to gold imports.

Professor J. M. Clark¹⁰ suggests that another factor which might be treated as a leakage "is the amount of the added purchasing power which is absorbed in increasing prices rather than increasing the volume of production and real incomes." The consideration of purely inflationary consequences of income increasing expenditures shows that, in choosing the income multiplier, we are not allowed to infer that what increases money incomes will necessarily increase, at the same time, employment and production. In translating, therefore, the income multiplier (which relates magnitudes

⁸ See Joan Robinson, *Introduction to the Theory of Employment*, chapter 3.

⁹ See Gottfried von Haberler, *Prosperity and Depression*, third edition, chapter 13.

¹⁰ J. M. Clark, *Economics of Planning Public Works*, p. 89.

expressed in monetary units) into physical terms we have to try to eliminate inflationary price rises which are bound to occur once we reach the "bottle-necks" of production. The employment multiplier (which relates the men initially employed to the total increase in employment) obviously stops working when "full" employment is reached while the money-income multiplier will continue to operate, though in a merely inflationary way.

4. MARGINAL PROPENSITY TO CONSUME AND MULTIPLIER THEORY

Being by definition the result of consumption expenditures alone the size of the multiplier is determined by the "marginal propensity to consume," that is, the relationship of an increment of income and the expenditure on consumption out of this income.¹¹ A marginal propensity to consume of *one* would, in this case, lead to a multiplier of *infinity*, a marginal propensity to consume of *zero* to a multiplier of *one*, and a marginal propensity to consume of *one-half* to a multiplier of *two*.

We must be careful, however, in establishing fixed relationships like these between the *total* addition to income and the initial expenditures.

The following points have to be considered:

(1) The *total* effect of initial expenditures upon income depends also on their effect upon other investment programs. Private investments, e.g., might decrease in reaction to government deficit spending which private business may consider dangerous.

¹¹ See J. M. Keynes, *The General Theory of Employment, Interest and Money*, chapter 10; and Haberler's critique of Keynes's multiplier analysis in *Prosperity and Depression*, chapter 8. If the marginal propensity to consume is α , the multiplier is found by the formula $\frac{1}{1-\alpha}$. A marginal propensity to consume of $\frac{2}{3}$ leads, e.g., to a multiplier of $\frac{1}{1-\frac{2}{3}}$ or 3.

(2) The effect of initial expenditures upon income per period of time, say a year, depends on the length of the multiplier period, and this influence of the multiplier period cannot be considered properly if we define the multiplier as a timeless, instantaneous relationship.

(3) When invested savings are excluded from the multiplier analysis, it is absolutely necessary to combine the discussion of the multiplier with a discussion of the acceleration principle before statements about the *total* effect of the initial expenditures upon the national income can be made.

5. THE PRINCIPLE OF ACCELERATION OF DERIVED DEMAND

The multiplier, as explained above, shows what effect upon income an initial expenditure of money will have, *provided* that we consider only consumption expenditures. In order to be able to estimate the *total* effect of initial expenditures upon income, we have to allow for the fact that a net increase in consumption may, in turn, induce further private investment.

In our successive spending examples we assumed that money spent on consumers' goods was either used to order new consumers' goods or that it leaked out through hoarding or debt cancellation. But it is also possible to assume that a net increase in consumption will induce *additional* investment. Retailers and wholesalers may increase their inventories if it is their custom to keep their inventories in a fixed proportion to the rate of sales. New orders will, in this case, increase by more than the increase in sales.¹²

A similar but often much stronger effect is to be expected when the increased demand concerns durable consumers' goods. Durable consumers' goods are bought because of the services they render. To enjoy the services of the durable good throughout its lifetime the durable good first of all has to be produced. Thus the increased demand for services leads to an

¹² See Haberler, *op. cit.*, p. 94.

accelerated demand for the goods which render these services. While an increase in income may be just enough to pay for the services which are rendered monthly or to make small payments on the instalment plan, the demand cannot be satisfied unless the durable consumers' goods are produced as a whole. The increased demand for services of durable consumers' goods (such as apartment houses, automobiles, refrigerators, and washing machines) leads, then, to an accelerated demand for the durable consumers' goods themselves. But the purchasing power provided by the working of the multiplier is now no longer adequate to take care of this increase in production. New funds have to be supplied on the credit market. These credits can take the form of loans to the producers of durable goods or of loans to the consumers who purchase them.

The greater the difference between the sales price of the service (e.g., monthly rents) and the total cost of the durable good (e.g., apartment house) or the greater the number of instalments, the greater the magnification of an original increase in demand and the greater the opportunity for new investments, for new credit expansion, and the starting of new multiplier effects.

The principle of acceleration of derived demand does not only work in the case of durable consumers' goods. It can be stated quite generally that "since the production of any given amount of final output usually requires an amount of capital several times larger than the output produced with it during any short period (say a year) any increase in final demand will give rise to an additional demand for capital goods several times larger than that new final demand"¹³ so that "changes in the demand for consumers' goods are transmitted with increasing intensity to the higher stages of production."¹⁴

A simple example will clarify the working of the acceleration principle. We assume that the production of consumers' goods

¹³ See F. A. Hayek, *Profits, Interest and Investment*, p. 18f.

¹⁴ Haberler, *op. cit.*, p. 88.

such as shoes, electric fixtures, or cigarettes has been carried through at full capacity when, as a consequence of a general rise in income, the demand for consumers' goods increases by, say, 10 per cent. We assume furthermore that in order to produce any kind of these consumers' goods, a considerable amount of fixed capital is needed. Let us say that to produce 1000 "units" of the consumers' goods per year, we need 500 "units" of capital goods. These "units," constituting plant and equipment, have to be replaced at a rate which depends on the average durability of the capital goods. Assuming an average durability of 10 years, we have to replace 50 units each year, and the capital goods industry has to produce these 50 units to maintain the flow of 1000 units of consumers' goods. Since we assumed that the plant capacity was fully used, a 10 per cent increase in the demand for consumers' goods (from 1000 to 1100 units) will require 550 units of capital equipment instead of only 500. This *new* demand for investment goods, added to the normal replacement demand of 50 units, raises the production of capital goods to 100 units or by 100 per cent as a reaction to an increase in consumption of only 10 per cent. The demand in the higher stages of production has been "accelerated."

Our example shows some interesting results. Should the demand for consumers' goods increase again in the succeeding period, this time to 1200 units, the net increase in the demand for capital goods over that of the preceding period would be only 5 units as compared with a net increase of 50 units when consumers' demand previously increased from 1000 to 1100 units. The net increase of 5 results from 55 units total replacement demand plus the demand for 50 units of new investment goods or a total of 105 units as compared with the previous annual demand for 100 units.¹⁵ Should the demand for con-

¹⁵ Since we can argue that the new units of capital equipment will not be replaced in the first year, we can even assume that the demand for capital goods would not rise at all.

sumers' goods remain at 1200, the investment goods industry, far from enjoying stable demand conditions, would experience a sharp decline in demand from 105 units to only 60 units (which is the replacement demand for the capital equipment of 600 units, needed for the continued production of 1200 units of consumers' goods).

Important conclusions can be drawn from these simplified examples which show that the interrelation between consumers' goods demand and investment goods demand is of a highly sensitive and complicated nature, so that instability may prevail where the superficial impression seems to be one of stability and equilibrium.

Our example shows that the degree of acceleration depends on the ratio between new demand and replacement demand and therefore on the durability of the investment goods. If we assume smaller replacement figures, that is, greater durability of the equipment in question, the fluctuations of capital goods production tend to become more violent. A durability of zero, on the other hand, would eliminate the working of the principle of acceleration.

The principle of acceleration of derived demand seems to be so powerful a tool of analysis that it tends to overexplain the facts observed.¹⁶ We hasten therefore to introduce several qualifications.

First of all we have to consider the possible existence of unused plant capacity. Obviously the principle of acceleration does not work when we are able to expand consumers' goods production without producing more investment goods.

In case of a mere shift in demand from commodity *A* to commodity *B* the principle of acceleration does not have the same effect as in the case of a total increase in demand for consumers' goods. It would be an overstatement, however, to say that there could be no acceleration of derived demand in

¹⁶ R. F. Harrod, *The Trade Cycle*, Oxford, 1936, p. 58.

this case. The effect of a mere shift in demand will depend, as Professor Haberler has pointed out,¹⁷ on the importance of the durability of the capital equipment in industries *A* and *B*, on the existence of unused plant capacity in industry *B*, and on whether the equipment of industry *A* can be used for the production of commodity *B*.

Another qualification is to be found in the nature of the expected increase in the demand for consumers' goods. If this increase is not expected to last, it will not lead to an increased demand for capital goods.

6. THE INTERACTION OF MULTIPLIER AND ACCELERATION PRINCIPLES

We shall now combine the multiplier principle and the principle of acceleration.

Assuming continued initial expenditures and a given marginal propensity to consume we can explain a net increase in consumption expenditures. The speed of this increase depends on our assumptions concerning the multiplier period. The net increase in consumption, in turn, induces further investment at a ratio which depends on such factors as the existence or non-existence of unused plant capacity and the direction of the new demand. The ratio between a net increase in consumption and the investment induced by this increase is referred to as the "relation."¹⁸

The induced investment is financed by newly created money. Since we excluded by definition invested savings from the multiplier analysis, we have to consider them now as a possible source of loanable funds for financing induced investments. If these multiplier-savings are not sufficient, further funds have to be created.

Induced investments financed by newly created money (or by money hitherto treated as leaking out) are, in turn,

¹⁷ Haberler, *op. cit.*, p. 99.

¹⁸ See R. F. Harrod, *op. cit.*, pp. 53-65.

starting points for new multiplier processes because they lead to successive consumption expenditures. This further net increase in consumption again induces further investment—and so on and so forth.

A superficial student of the combined effect of multiplier and acceleration may be tempted to conclude that it is comparatively easy to extricate the economy from a state of depression by a relatively small amount of initial expenditures, which do not even have to be continued, provided that the induced expenditures are strong enough to carry on. But there is, as a rule, no such "possibility of raising the income to higher and higher levels by the process of lifting yourself by your bootstraps via the interrelation of increased consumption and increased investment in the familiar expansionist process."¹⁹ We shall see that such a result (which, incidentally, implies at the same time the danger of inflation) is only possible if we make rather extreme assumptions concerning the size of multiplier and "relation."

We have to remember (1) that the multiplier effect of a continued equal amount of initial spending is very definitely a limited one, depending for its size on the marginal propensity to consume; and (2) that the multiplier effect leads to *rising* consumption expenditures only for a limited period of time after which consumption expenditures are only *maintained* as long as the initial expenditures are maintained.

Multiplier analysis explains how under certain assumptions a new income level will be reached, how soon it will be reached, how high it will be, and how it can be maintained. But multiplier analysis cannot explain fluctuations other than those which are already implied in its assumptions. Only fluctuations in initial expenditures will lead to fluctuations in income.

If we combine the multiplier with the acceleration principle, we introduce a dynamic element which can explain fluctua-

¹⁹ Hansen, *Fiscal Policy and Business Cycles*, pp. 283-284.

tions as well as a constant increase in national income, depending on which assumptions we choose concerning the marginal propensity to consume and the "relation."

Let us assume, for instance, that a net increase in consumption causes investment to increase by an equal amount. This assumption added to our assumed marginal propensity to consume of one-half suffices to create damped fluctuations in income. The net increase in consumption leads, according to a relation of one, to an equal amount of induced investment which, financed by new money, is the starting point for a new multiplier effect. And since the increase in consumption due to induced investment induces still further investment, we can expect further dynamic effects which will, however, decrease in their quantitative importance the more remote they are from their original stimulus during the period in which the multiplier effect of the initial expenditures lifted the national income to its new level.

An example will clarify the dynamic effect upon income of the combined working of multiplier and acceleration. We add to the assumptions of our first schematic illustration (marginal propensity to consume, one-half; initial expenditure \$100 in each multiplier period) the further assumption that each net increase in consumption causes induced investment of an exactly equal amount (that is, the "relation" is assumed to be one).

The first initial expenditure of \$100 on wages is an increase in national income of \$100 of which \$50 is spent in the next period on consumers' goods. Since consumption has been increased by \$50, we assume that induced investment will be \$50 and that, in the second period, the total effect upon national income will therefore be \$100 initial expenditure, plus \$50 multiplier effect of the initial expenditure of the preceding period, plus \$50 induced investment or, altogether, \$200.

In the third period we have to consider (1) the initial expenditure in the third period (\$100); (2) the multiplier

effects of the initial expenditures of the two preceding periods (\$50 and \$25); (3) the multiplier effect of the induced investment in the second period (which is, always assuming a marginal propensity to consume of one-half, \$25); and (4) the induced investment in the third period which is equal to the net increase in consumption in the third period (or \$50). This figure of induced investment (\$50) is equal to the difference in consumption expenditures in period two (\$50) and period three (\$100). The consumption expenditure in period three is the effect of the initial expenditures of periods one and two and of the induced investment expenditure of period two (\$50 plus \$25 plus \$25). The total effect upon the national income in the third period is \$250.

It is obvious that for the following periods the example becomes too unwieldy for detailed literary description. The basic facts, however, are not complicated. The working of the acceleration principle causes the national income to increase much faster at first than under the influence of the multiplier alone. But if the induced investment is not a predominant factor (that is, if we assume modest figures for the "relation" of induced investment to net increase in consumption expenditures), we can expect only damped fluctuations of the national income around its new level (which level is the result of the multiplier effect of the continued initial expenditures).

At first, that is, during the period in which the national income is lifted to its new level by the multiplier effect of the initial expenditures, the induced investments are an important addition to the initial expenditures. But as the initial expenditures are soon only maintaining the new income level, the induced investments must fall off again unless we have chosen a high "relation." Since, under the multiplier effect of induced investment, total new investment was lifted beyond the level necessary to maintain the new plateau of the national income (which will be maintained by the initial expenditures), it can be expected not only that induced investment will stop

but that the added investment due to the temporary multiplier effect of the induced investment will be compensated for by a reduction in replacement expenditures. As dis-investment occurs, the national income may for some time even decrease until the maintenance of the new consumption level (due to continued initial expenditures) again necessitates new investment. This increase in investment will have a multiplier effect which will again induce investment—and so on and so forth.

What our results would be under the assumption of a different "relation" and a different propensity to consume has been shown by Professor Samuelson.²⁰ If we consider the multiplier effect alone, that is, assuming that the "relation" is zero, continued initial expenditures lead to a national income which is increased by the amount of the initial expenditure per multiplier-period times the multiplier. With a "relation" of one and a marginal propensity to consume of one-half, as assumed above, we get damped fluctuations around the new income level. With higher values for the marginal propensity

²⁰ See Paul A. Samuelson, "Interaction between the multiplier analysis and the principle of acceleration," *Review of Economic Statistics*, 1939, pp. 75-78. If α is the marginal propensity to consume and β the "relation," the model sequences of national income for selected values of α and β are shown by Professor Samuelson in the following table:

Period	$\alpha = .5$ $\beta = 0$	$\alpha = .5$ $\beta = 2$	$\alpha = .6$ $\beta = 2$	$\alpha = .8$ $\beta = 4$
	(Unit: one dollar)			
1	1.00	1.00	1.00	1.00
2	1.50	2.50	2.80	5.00
3	1.75	3.75	4.84	17.80
4	1.875	4.125	6.352	56.20
5	1.9375	3.4375	6.6256	169.84
6	1.9688	2.0313	5.3037	500.52
7	1.9844	.9141	2.5959	1,459.592
8	1.9922	— .1172	— .6918	4,227.704
9	1.9961	.2148	—3.3603	12,241.1216
..

to consume and for the "relation" we can get "explosive" fluctuations and for still higher values we have to expect a constantly and rapidly increasing national income which may, however, be of an entirely inflationary character.

Since even utterly simplified models lead to entirely different results if we change our assumptions concerning the "relation" and the marginal propensity to consume, it is quite obvious that predictions as to the combined leverage effect of multiplier and acceleration principle in concrete circumstances are next to impossible.

Most of the quantities and ratios connected with our problem are not constant during the leverage process but are continuously changing, and we are even forced to assume that they will change since they are all more or less sensitive to changes in income and employment. The "relation," for instance, depends on such factors as the relative importance of replacement demand, the existence of unused plant capacity, and the direction of the new demand for consumers' goods. All these factors again are subject to change during the business cycle.

It is therefore hardly necessary to emphasize that the application of the multiplier and acceleration principles does not mean that we can dispense with business cycle theory.²¹

²¹ See Haberler, *op. cit.*, p. 477: "It is, of course, impossibly unrealistic to adhere to the assumption of a constant marginal propensity to consume and *relation*. In real terms they cannot remain constant when the movement is in the upward direction; for when full employment is reached (or approached with bottle-necks) a further rise in consumption and investment in accordance with a constant multiplier and *relation* is physically impossible. In monetary terms the expansion could conceivably continue unchanged even then; but in that case prices would have to rise, and moreover a perfectly elastic credit supply would have to be presupposed. If credit supply is not perfectly elastic, the rate of interest (or some sort of credit rationing) has to be introduced as an additional factor influencing investment. There are a hundred other ways in which these simple sequences would in practice require to be elaborated and complicated."

Chapter 22

A MODEL CYCLE

1 REVIVAL

In the present chapter we shall try to sketch a model business cycle, though it goes without saying that such a theoretical abstraction cannot be applied to particular historical situations without considerable qualifications. But an understanding of the basic forces which may cause business cycle movements is essential for the formulation of those monetary policies which aim at "full utilization of economic resources"¹

The point of departure which is selected for our analysis is of great importance. If we begin with the assumption that the economic system is in equilibrium with all resources "fully" employed, and then proceed to investigate the impact and effect of forces disturbing this equilibrium, the whole cycle explanation is given a wrong twist from the start.

The process of expansion must be understood as a partial result of the economic situation prevailing at the end of the process of contraction. If they started from full employment equilibrium, the expansionist forces of the cycle would have much less chance to work themselves out than in a system with unused resources. Rising prices and other frictions in the transfer of the factors of production from one industry to another would soon check and reverse the expansion process. Only under the condition of the availability of unemployed resources and unemployed labor can the expansion process continue for a considerable period of time and gather enough

¹ See "Objectives of monetary policy," *Federal Reserve Bulletin*, September 1937, p. 827.

momentum so that dangerous disproportionalities will develop in the structure of the economy.

We break into the cycle at the point of time when a depression or stagnation changes into a period of revival. In other words, our model begins at the "lower turning point" of the business cycle. The change which marks the lower turning point is due to a combination of factors and circumstances. First of all it is to be noticed that an economy with a huge investment potential and a credit system capable of a highly elastic supply of loanable funds is in a state of readiness or preparedness for a process of expansion in physical as well as in monetary terms. Next there is the great probability that during depression and stagnation there has been accumulated a replacement demand which cannot be indefinitely postponed if a given level of production and consumption is to be maintained. The demand for durable consumers' goods, too, may have a tendency to increase for similar reasons (that is, replacement). Then there may occur an accumulation of potential innovations which may constitute increasingly interesting investment propositions under improving price and cost conditions. Finally there are those really big new investment opportunities which mean the creation of whole new industries.

What combination of these conditions and incentives will be strong enough to extricate the economy from a depression can not be ascertained on purely theoretical grounds. It is not even possible to prove that the revival will come, however probable it may be. On the other hand it must not be forgotten that we do not have to wait for an "automatic" (self-generated, or "natural") revival if an expansion process can be started artificially through a government spending program.

The readiness of the economy for a revival can be described in terms of a high investment potential² and also in terms of a

² See chapter 17, section 1.

highly elastic supply of loanable funds. Both statements are, of course, closely interrelated. An economy of full employment, that is, an economy with an investment potential of zero, could not have an elastic supply of loanable funds or would have to pay for such an elasticity, due to credit creation, with a price inflation.

Unemployed labor is available at that point of time (lower turning point) in a wide variety of qualities, and the supply of labor can therefore be characterized as highly elastic. Employment may be increased in many industries at one and the same time without leading to increased wage rates since the increase in employment in one industry need not, or not yet, lead to the hiring away of labor from other industries.

Then there is unused plant capacity available and stocks of goods are to be found in the different stages of production. Many firms have not produced at optimum capacity. As they expand, their overhead spreads over a larger number of units produced, reduces unit costs, and promises higher profits.

From the monetary point of view it is even more interesting to consider the great elasticity in the supply of loanable funds. This elasticity may be due to current saving, to dis-
hoarding, or to credit creation. It is, however, difficult to disentangle these cases. It is perhaps not quite correct to assume that savings "accumulate" during the depression, as has often been suggested in business cycle literature. This notion is definitely wrong if it leads one to believe that all savings that are not invested are somewhere and somehow stored up and held ready for future use. Savings which are not invested are hoarded and lead, via a decreasing national income, to a reduction in the supply of future savings. The statement about the accumulation of unused savings is correct, however, when it simply implies that hoarding creates the possibility of later dishoarding and may thus lead to an increased future supply of loanable funds "out of hoards," or perhaps when it implies that a part of the savings is invested

in unused stocks of goods in different stages of production. As soon as the revival begins, these stocks of goods can be sold, and we witness the process which has often been described as the thawing out of frozen credits.

But these "unused" savings do by no means account for the degree of elasticity in the supply of loanable funds which we find at the lower turning point. The depression is a process of deflation in which money is not only hoarded but is actually destroyed through debt-cancellation. Bank loans are paid back, but the funds are not loaned out again. Excess reserves remain as the only sign of a former supply of loanable funds. Excess reserves indicate increased liquidity and the possibility of supplying more loanable funds through credit creation, provided that new funds are demanded. Considering this possibility of credit creation or credit re-creation, the supply of loanable funds at the lower turning point will often be perfectly elastic.

The counterpart of this perfectly elastic supply of loanable funds is the idle means of production, which constitute the investment potential of the economy. These factors of production could not be made active again without an increase in total demand in terms of money, that is, without credit creation, at least not at the prevailing cost-price relationships.

Rates of interest will be low as people tend to dishoard and as banks are willing to expand credit. The decisive question is, however, whether rates of interest will be lower than anticipated rates of profit. We may assume that in due time this will actually be the case. Or we may be less optimistic and assume instead that the necessary stimulus is provided artificially by a government spending program.

2. PROSPERITY

We have assumed that revival has begun, investment increases and is financed with funds derived from dishoarding or credit creation. The investment, incidentally, need not be

"new" in the sense of an increase of capital goods production over and above the maintenance of capital. At first it is only important that gross investment increases, that is, that investment takes place at a higher rate than during the preceding period. Accumulated replacement demand may suffice as an igniting spark. In the long run, however, replacement demand will have to be supported by a substantial new investment demand (expansion demand).

As new money flows into the economy, the national income increases. Men, newly employed in the investment goods industry, will spend part of their newly earned money on consumers' goods. New consumers' goods will be ordered, and the money spent on consumers' goods will become secondary and tertiary income of an ever widening circle of those who participate directly or indirectly in the production and marketing of these consumers' goods. This is the multiplier effect which has been discussed above. Its strength depends on the size of the multiplicand, that is, the size of the additional investment expenditures, and on the marginal propensity to consume, that is, on the proportion of the newly received income which is spent on consumers' goods.

As to the part of the newly created income which is leaking out in the form of savings, we have to remember that these savings may well be used to finance further investment which may be induced by the very consumers' expenditures accounted for by the multiplier. Whether savings should be considered as a positive or as a negative element in the expansion process cannot easily be decided. Assuming that the supply of loanable funds is so perfectly elastic (due to credit creation) that any increased demand for loanable funds could be satisfied anyhow at the same low rate of interest, the process of saving has a decidedly retarding effect. The supply of loanable funds is now (with an increased amount supplied out of current savings) to a lesser degree dependent on credit creation; therefore, less new money is injected into the econ-

omy. A similar, and additional, retarding effect comes from the demand side. A higher propensity to consume (less saving) would have led to a higher multiplier and probably to a higher amount of induced investment (a higher "relation"). This would have meant a higher demand for loanable funds apart from the fact that a smaller proportion of these funds would have been supplied by savings.

Whether this retarding (deflationary) effect of saving should be treated as a positive or a negative element depends on the magnitudes involved, on the speed of the expansion process, and on the size of the remaining investment potential. A strong deflationary effect in the very beginning of a revival may be fatal to the expansion process. Whether an anti-inflationary effect is desirable as a braking influence during later phases of the upswing is a question which can only be answered when we understand why the upswing comes to an end.

How an upswing, once under way, gathers momentum and develops into prosperity is easily shown by the interaction of the multiplier and acceleration principles. In referring back to the discussion of these principles in chapter 21, it is imperative to remember that none of the models used in this earlier chapter can be taken as a realistic description of what happens during revival and prosperity. All the quantities involved (marginal propensity to consume, "relation," rates of interest, anticipated rates of profit) are subject to change and should not be treated as stable magnitudes in a model cycle.

Multiplier and acceleration principle suffice to show, however, how the upswing, once started, propels itself from revival into prosperity while credit creation is constantly at work financing the gradual absorption of the investment potential of the economy.

It is a well-known fact that cyclical fluctuations are more marked in the capital goods (and durable consumers' goods)

industries than in the non-durable consumers' goods industries. This is mainly due to the following three reasons:

(1) Investment (that is, the use of the means of production for the production of producers' or consumers' durable goods) depends on the prospective rate of profit compared with rates of interest. Low rates of interest increase the capital value of durable goods because the value of durable goods yielding a fixed amount of income varies inversely with the interest rate.³ Assuming that prices and profit expectations increase but that rates of interest remain low, owing to an elastic supply of loanable funds, the production of durable goods will increase. The rate of interest is of greater influence upon the production of durable goods than upon the production of semi-durable or perishable goods.

(2) The principle of acceleration of derived demand shows that "changes in the demand for consumers' goods are transmitted with increasing intensity to the higher stages of production." Since it is very easy to show that consumption will increase during revival and prosperity, it has to be assumed that the reaction of the increase in consumers' demand upon the demand for producers' and consumers' durable goods will be even more pronounced. While the principle of acceleration has to be used with care and under consideration of its many limitations, it is, nevertheless, perfectly able to explain why, for some time at least, the demand for capital goods may increase proportionately more than the demand for consumers' goods.

(3) An important factor in the explanation of the greater amplitudes in the fluctuations of the capital goods production as compared with the consumers' goods production is due to the time-consuming character of the production of durable goods. If it takes considerable time until the products emerge, also it takes considerable time until increased production has

³ See pp. 368-369.

its effect on the price of finished goods. Profits are therefore maintained until too many time-consuming processes have been embarked upon.

While the business cycle is more pronounced in the capital goods industry, it is certainly not limited to the production of durable goods. The interrelation of multiplier and acceleration principle shows clearly how consumption reacts upon investment and how an increase in consumption, in turn, induces investment. It is this interrelation which explains the self-propelling character of the expansion process, at least as long as unused factors of production are available at given costs and as long as the expansion process can easily be financed through an elastic supply of loanable funds. Even a rise in prices will not immediately exert a braking influence. Profits may increase as long as cost prices (interest, wages) lag behind product prices. Increasing profits, again, will lead to an increased supply of loanable funds out of savings and therefore reduce the speed of inflation.

But the process of expansion must come to an end when the investment potential is absorbed and when, therefore, the expansion of credit sooner or later has to be stopped. It can be shown that it is extremely unlikely that the structure of the economy will be so well-balanced when we reach, or approach closely, the full employment level that it can be expected to maintain an equilibrium at this point of maximum utilization of resources.

3 FULL-EMPLOYMENT DISEQUILIBRIUM

As the economy expands and the unemployed resources are absorbed and as further resources are needed for the continuation and completion of the processes which have already been embarked upon, the means of production must be hired away from other industries. Prices begin to rise quite generally and substantially, and the expansion of credit begins to be inflationary in the ordinary sense of the word.

This does not by itself stop further credit expansion. As "bottle-necks" are reached, it is, however, impossible for production to expand substantially. Investment can now be increased only at the expense of consumption or consumption at the expense of investment. And this constitutes a situation of grave danger. The economy is now, as Professor Haberler says, very vulnerable.⁴ It is not able to adjust itself easily to changes in demand and finds itself on the verge of a deflationary downgrade.

That the process of expansion comes to an end and is followed by a process of contraction is due to the following circumstances:

(1) The economy has reached, or closely approached, its full employment level and can, therefore, not expand any longer in physical terms. Further expansion in one direction has to be paid for by contraction in another direction.

(2) Corresponding to this ceiling for physical expansion we have to distinguish a limitation for further credit expansion. Such expansion is, of course, technically possible. It can be assumed, however, that the monetary authority will be reluctant to permit further credit expansion in order to avoid outright inflation.

(3) This sudden drying up of the inflationary source of the supply of loanable funds will raise the rate of interest. It is extremely unlikely that savings could increase enough to make up for the decrease in credit expansion and the exhaustion of other sources of the supply of loanable funds, which, though important at the beginning of the upswing, are no longer to be counted upon (dis-hoarding, thawing out of frozen credits).

(4) Profits (and with profits, savings) will decrease for two main reasons. (a) Together with an increase in rates of interest we witness the increase in other costs due to the increased

⁴ Gottfried von Haberler, *Prosperity and Depression*, p. 361.

competition for the factors of production as full employment is approached (b) Product prices may tend to fall as the time-consuming processes of production are brought to a conclusion Under the illusion of high prices too many investment processes have been started Prices had not fallen early enough, because of the time consuming character of the investment processes Now inventories are swollen and prices tend to fall precipitously

(5) The acceleration principle shows that even a decrease in the rate of increase of consumption is enough to lead to a substantial absolute decrease in the demand for capital goods Since we have reached bottle-necks near the full employment level, it is obviously impossible to fulfill the condition necessary for the maintenance of the present capital goods production, namely, a continuously increasing consumption

(6) Consumption could increase at the full employment level only at the expense of the production of capital goods If, however, capital goods production is decreased, it is again impossible to maintain even the present level of consumption due to unemployment created in the capital goods industries

Both producers' and consumers' goods industries are geared to a mutual rate of growth which it is impossible to maintain Investment cannot increase when consumption decreases, but, at that stage, it is physically impossible to increase investment otherwise than at the expense of consumption Consumption, on the other hand, decreases when investment decreases (owing to the multiplier working in reverse), but has a chance to increase physically only at the expense of a decreased production of capital goods

All this sounds rather paradoxical However, it is the situation which is paradoxical, and statements like the ones made above give us the key to the explanation of the upper turning point and the beginning of the downward spiral

It is possible to imagine an ideal structure of the economy, an ideal proportion of its various parts, where all the different industries are adjusted in such a harmonious way that the output of consumers' goods corresponds exactly to the part of the national income which is spent on consumption and where the investment goods are bought by the savings which are forthcoming at the full employment level of the national income.

There may be a short period towards the end of the expansion process where this equilibrium seems to be reached or closely approached. But full employment only conceals the already existing disproportionalities in the structure of the economy, which are about to force the economy away from its full employment level and down into a depression.

The capital goods industry has been over-developed. Too many time-consuming production schemes have been started. Economically speaking their successful completion depends on whether they can be continued profitably until they reach the aim of all production, the consumer. Here we must consider the full length of the period of production; that is, we have to note that the completion of some steps or stages of production alone does not indicate the successful completion of these time-consuming processes for the economy as a whole. If the production of many more intermediate goods should be required before we can reach the ultimate consumer, then we know that more loanable funds are needed to enable us to finish the processes of production. As the danger of outright inflation is menacing, it is, furthermore, necessary that these loanable funds should be supplied in the main by voluntary saving.

At or near the full employment level, saving can be increased only at the expense of consumption. But a decrease in consumption (or even a declining rate of increase in the demand for consumers' goods) decreases the demand for capital goods in absolute figures. And this decreasing demand

is likely to hit the capital goods industries when they are just turning out an increased supply of those investment goods, the demand for which had previously been magnified by an increasing demand for consumers' goods.

There is no contradiction in these statements. They all indicate the same fundamental dislocation of the factors of production, the same hypertrophy of the capital goods industry. They imply that there is no perfect cure for this disease since we cannot increase both consumers' and producers' goods production at the same time when we are too near the full employment ceiling. If the demand for consumers' goods increases, then the supply of loanable funds is insufficient, and if enough loanable funds are supplied due to a reduction in consumption, then we reduce the demand for capital goods due to the acceleration principle's working in reverse.

It cannot be argued that we should simply transfer as many factors from the capital goods industry to the consumers' goods industry, or vice versa, as is required by the proportion of consumption and saving with the national income at the full employment level. This argument fails to take into account those important frictions in our economy which are due to the simple fact that the means of production cannot easily be shifted around. It should be noticed that it is often not feasible to interrupt time-consuming processes before they are brought at least to a certain stage of technical completion. That we cannot shift the factors of production at will and that we cannot undo those investments which have already taken place is obviously the crux of the whole matter and needs no further explanation.

Had a centrally planned economy made the same mistake of overexpanding the capital goods industry, it would be faced with similar difficulties.

Let us assume, for example, that the authorities of a planned economy have decided upon a tremendous investment program which necessitates the reduction of consumption to

a low level. The authorities promise that the population will enjoy the fruits of the present capital construction after 5 years in the form of a higher standard of living. Suppose, however, that the planning board underestimates the magnitude of the capital construction which has to be carried out before the gains in final consumption can materialize. Such underestimation is easily possible considering the fact that it is a task of overwhelming difficulty to "draw up a faultless and exhaustive economic plan, beginning with the number of hectares of wheat and down to the last button for a vest."⁶

Assuming that the investment program was too ambitious and that, at full employment, production of investment goods can only be increased at the expense of reducing consumption still further, the planning board has a choice between two policies. It can admit the mistake and leave part of the investment goods idle or unfinished, probably causing some temporary unemployment; or it can cut down consumption in order to free productive resources and labor for the continuation of the yet unfinished investment program.

We are now prepared to answer the question of whether the upper turning point in the model cycle of a capitalist economy is to be explained by over-investment or under-consumption. The disproportionality was caused by over-investment. It is important to notice, furthermore, that the disproportionality could not be overcome by increased consumption. The under-consumption explanation of the upper turning point is wrong if it implies that prosperity has to come to an end due to the impossibility of selling over-produced consumers' goods. It is correct to say, however, that the demand for investment goods depends in a very sensitive sort of way on the demand for consumers' goods and that "under-consumption" in the sense of a lacking growth in the demand for consumers' goods is actually causing the decline in the investment goods industry.

⁶L. D. Trotsky, *Soviet Economy in Danger*, p. 29f.

The same decline can also be explained by an insufficient supply of loanable funds (out of savings) with which to buy the capital goods. Once the decline in the capital goods industry is accounted for, it is very easy to show that a decrease in employment and consumers' purchasing power will be the strongest among the forces which cause the economy to contract.

4 CONTRACTION

A planned economy which has overexpanded its capital goods production would have to make some adjustment in the direction either of an increased capital goods or an increased consumers' goods production. The economy will encounter frictions in the process of shifting the factors of production and will either have to leave some investment goods idle or unfinished or it will have to cut down consumption. But these frictions and sacrifices exhaust the difficulties which a smoothly working planned economy would have to face. The planned economy would be able, theoretically, to avoid a process of general contraction which is characteristic for a depression in the unplanned capitalist economy.

In a free capitalist economy it is impossible to maintain consumers' demand (let alone the maintenance of an equal rate of increase of consumers' demand) when the capital goods industries have become over developed and reduced their activities temporarily to the level of mere replacement demand or to an even lower level (in which latter case the economy would not even maintain its capital). As soon as investment falls off, the driving forces of the upswing, multiplier and acceleration principle, begin to work in reverse. Decreasing investment means unemployment and decline in consumers' purchasing power. Loanable funds, rather than being invested and spent for wages, are paid back to the banks, which in turn fail to lend them out again, partly because of an increased

liquidity preference of their own and partly because of lacking demand.

The unsaleability of goods in all stages of production spreads over all the economy and decreases the national income earned by considerably more than the initial decrease in spending. The impact of the decrease in effective demand upon a supply which in some cases increases leads to a general fall in prices. This price-fall, again, causes the velocity of circulation of money to decrease, because many firms and individuals anticipate a further fall in prices and are therefore reluctant to make purchases. When goods cannot be sold and when loanable funds remain frozen in the form of unsold goods, the striving for liquidity becomes general. The rate of interest remains relatively high because of this increased liquidity preference, and the real rate of interest tends to increase as prices fall.⁶

It is quite obvious that such a process of self-deflation adds substantially to those difficulties which were unavoidable because of the disproportionalities which had already developed between the production of consumers' and producers' goods. These additional difficulties could have been avoided if the purchasing power of the consumers could have been maintained at the level which it had reached towards the end of the upswing. With the over-development of the capital goods industries and the necessary decline in investment there is little chance in the *laissez-faire* economy to avoid this process of self-deflation.

Part of the decrease in prices would be natural and wholesome. It must not be forgotten that the adjustment of relative prices to each other is an essential working condition of the capitalist economy. The rate of interest must decrease and

⁶ The "real" rate of interest should not be confused with the "natural" rate of interest. The latter is really a profit rate and falls with declining prices; the former is a loan rate corrected for price changes and rises with declining prices. See footnote to p. 330.

so should certain wage rates and prices of materials as the economy approaches the lower turning point. But these price adjustments are, at first, drowned in the general deflation which defeats its own purpose by actually raising the "real" rate of interest and by causing a decrease in the total wage bill of the economy. That consumers' goods prices fall is due mainly to the lack of consumers' purchasing power and not to an overproduction of consumers' goods.

Thus we see that "the forces of contraction may drive the economy farther away from the equilibrium, and the equilibrating tendencies may not have time to come into play or, if they do come into play, may not be strong enough to restore equilibrium, since the disturbance of the latter will have been still further increased in the meantime."⁷

The process of contraction may continue for a long time before the lowest point is reached. When it will be reached and when we shall hit the "rock bottom" of the depression (where gross investment equals again gross saving and where the national income does not shrink any longer) is a question which is even more difficult to answer than the question about the upper turning point. We have already seen that it is always possible for the monetary authority to stop a credit expansion and to bring about a downswing. But it is anything but certain and indeed very unlikely that the monetary authority alone will be able to lift the economy out of a depression. There is, as Professor Haberler has remarked, in this respect "a certain asymmetry between the upper and the lower turning points."⁸ We cannot even be sure that the lower turning point will be a point (in the sense of a time series) and not a long period of equilibrium at a most substantial degree of unemployment (stagnation).⁹

⁷ Gottfried von Haberler, *Prosperity and Depression*, p. 355.

⁸ Gottfried von Haberler, *ibid.*, p. 378.

⁹ See chapter 20, section 5.

Since the structure of the economy at the end of a period of depression has already been described it suffices to remark that those assumptions which we made when we started our model at the lower turning point were by no means artificial. They are the effect of a process of contraction and self deflation which reduced the use of the productive resources to a level so low as could not be accounted for by the disproportionalities which had developed during the upswing.

Chapter 23

MONETARY POLICY AND ECONOMIC STABILIZATION

1. THE CONCEPT OF "FULL EMPLOYMENT"

We have made frequent use of the concept "full employment." It was referred to as an aim of monetary policy and also as a condition in which the economy is more "vulnerable" than at times when unemployed resources are available. Now it becomes essential to point out that this concept is by no means as clear as its frequent use suggests.¹ First of all it has to be understood that we are not exclusively interested in full employment. We are rather aiming at an optimum utilization of economic resources in general, and this aim does not necessarily coincide with full employment. Assuming that an optimum utilization of economic resources has been achieved, there will always remain unused land of lower grade, unused obsolete equipment, and, in special fields of the labor market, unemployed labor. (Besides involuntary unemployment there will also remain unused the labor power of those who do not want to offer their services at existing wage rates.)

The idleness of means of production does not indicate that the total national income produced is lower than it would be had these unemployed means of production been used. We must not forget (1) that the means of production cannot always be shifted at will from one industry or locality to the other; (2) that we cannot combine at will the different means of production since the technical data of production require a

¹ See John H. Williams, "Economic and monetary aspects of the defense program," *Federal Reserve Bulletin*, February 1941, p. 97.

certain complementarity of the factors used; and finally (3) that demand is constantly changing, quite independently of the possible technical combinations of the available resources.²

Employment figures are an important criterion of the business cycle situation, but they are not an absolutely trustworthy guide for business cycle policy. Even substantial unemployment figures cannot be taken as a safe go-ahead signal for credit expansion. If these unemployed men cannot be shifted into the expanding industries, they cannot be counted upon to help to increase the trade volume and to help, therefore, to counteract the inflationary effects due to credit expansion.

The danger signal must rather be seen in the appearance of bottle-necks, that is, of limitations on further expansion in physical output due to scarcity of essential services, tools, or raw materials. Unemployment of means of production can be caused by the lack of complementary goods and is therefore no proof that production can be expanded.

If we insisted on the full use of all available productive resources or, at least, on full employment of all available labor, we might easily be forced to choose combinations of the factors of production which yield a considerably smaller social product than the optimum combination which leaves some of the available means of production unemployed.

2. LIMITATIONS OF MONETARY POLICY

In the following pages we take it for granted that it is desirable to promote economic stability, that is, to eliminate excessive business cycle fluctuations.

² J. M. Keynes comes, under simplifying assumptions, to the conclusion "that an increase in the quantity of money will have no effect whatever on prices, so long as there is any unemployment." Among the possible complications Keynes mentions the fact that resources are not interchangeable and that some commodities will reach a condition of inelastic supply whilst there are still unemployed resources available for the production of other commodities. See *The General Theory of Employment, Interest and Money*, p. 295f.

Economic stability cannot be achieved by monetary policy alone. Monetary measures, if not supported by other government policies, may not even be able to achieve or to maintain a specified price level, let alone the stabilization of economic activity.

In response to requests for comments on proposals having as their objective the stabilization of prices through monetary action, the Board of Governors of the Federal Reserve System came to the following conclusion (in March, 1939): "There are too many other factors affecting prices and business activity fully as powerful as the money supply. Many of these factors are non-monetary and cannot be controlled by monetary action. Their effect on business activity may express itself in an increased or decreased rate of use, or turnover, of the existing supply of money as well as in a change of the supply itself. The influence that the Federal Reserve System can exercise over the interest rate has an important bearing on business activity, but it may be entirely offset by other factors."³

In times of depression or stagnation the monetary authority can do very little. It might not even be called upon to create additional credit facilities considering the prevailing liquidity of the banking system which results from the process of self-deflation during the depression. The monetary authority cannot enforce investment. It can, to a certain degree, control the money rate of interest. But it cannot control the rate of profit which may happen to be a negative quantity. Only in times of prosperity, when excess reserves of the commercial banks have gradually been absorbed, can the monetary authority begin to influence the extent of credit expansion. That the monetary authority can begin to make effective use of its instruments of credit control does not imply, however, that it will be able to reach the aim of economic stability. By

³ "Objectives of monetary policy," *Federal Reserve Bulletin*, September, 1937.

the time the monetary authority is able to exert a controlling influence upon the supply of loanable funds, the revival may have gathered considerable momentum, and dangerous disproportionalities may have developed, though they may not yet have led to bottle-necks or inflationary price developments. These disproportionalities may become apparent, however, as soon as monetary policy plugs up the inflationary sources of the supply of loanable funds. The monetary authority, which could not control the process of expansion in its beginning, may find itself in the unpleasant position of having to take the blame either for spoiling the expansion process at the time before the bottle-necks are reached and when the public is still optimistic, or, on the other hand, for letting the situation get out of hand.

The monetary authority, furthermore, is not always free to raise the rates of interest in order to check an inflationary expansion. Increasing rates of interest are equivalent to a fall of security prices and may be opposed by the public, the banks, and the Treasury alike.

Thus the monetary authority is fully justified if it states that the objective of economic stability "cannot be achieved by monetary policy alone, but that the goal should be sought through coordination of monetary and other major policies of the Government which influence business activity."⁴

In the following paragraphs we shall try to investigate some of these major policies, putting emphasis in each case only upon the monetary and financial aspects of the problem.

3. PRIMING THE PUMP

If the rates of interest are higher than rates of profit, if credit, thus, cannot be expanded through loans to private borrowers, then it seems obvious that only a government spending program can succeed in injecting additional money

⁴ *Ibid.*

into the economy. Deficit spending is "the logical sequel to central bank policy."⁶

Government deficit spending is primarily a measure of fiscal policy. If the monetary authority is unable to increase or even to maintain the money in active circulation, deficit spending can be used as an instrument whose operation is independent of private profit anticipations and private initiative. The spending by the government of funds which have newly been created (or which otherwise would have been hoarded) helps to increase or to maintain the national income, the level of consumption, and perhaps in turn, private investment.

Government deficit spending has often been compared with the priming of a pump. The implication is that deficit spending is a limited and temporary process and that the mechanism (the pump, the economy) will be able to continue to operate without further outside help.

The idea of deficit spending would be of importance even if we could be confident that the economy would finally overcome the stagnation without an artificial stimulant. For it is highly questionable whether we should wait for an endogenous revival if we could overcome the inertia earlier through the "income increasing expenditures" of the government. Government deficit spending in the pump-priming sense is not expected to supplant private investment permanently; it is supposed to taper off as soon as private investment is strong enough to carry on.

This idea of a tapering off of deficit spending, however, reveals the basic difficulties of a pump-priming policy. It has already been shown in our discussion of multiplier and acceleration principle that continued deficit spending can lead to an increase in national income which is larger than the

⁶ See John H. Williams, "Deficit spending," *American Economic Review*, Vol. 30, February, 1941, p. 55.

amount of the "primary expenditures" The same discussion revealed, however, that the interrelation of "primary expenditures" and induced private investment is of a very complicated nature and depends on many factors which are again dependent on the cyclical situation ⁶

Under these circumstances it is extremely difficult to control the total amount of investment expenditures (public and private) in such a way that public spending tapers off and private investment increases The discussions of chapter 21 show that government deficit spending can hardly be expected to decrease and to induce, at the same time, enough private investment to increase or even to maintain total investment expenditures

If government deficit spending were the only inducement for private investment, the priming of the pump would most certainly be unsuccessful The pump would "refuse to be primed beyond the point of yielding a rather feeble trickle," and the government would, therefore, have "to continue its income increasing expenditures on a large scale in order to prevent actual recurrence of a decline in business activity" ⁷

Pump-priming can succeed only when, with increasing optimism, private investment projects are carried through whose profitability does not depend exclusively on the multiplier effect of income increasing government expenditures If such independent private investment opportunities are not available, government deficit spending cannot decrease without decreasing, at the same time, income and employment ⁸

The chances of a successful pump-priming policy are the better, the smaller are the income increasing expenditures

⁶ See chapter 21, section 6

⁷ See B F Haley, "Economic consequences of deficit financing," *American Economic Review*, Vol 30, February, 1941, p 71

⁸ See J M Clark, "An appraisal of the workability of compensatory devices," *American Economic Review*, Vol 29, March, 1939, p 201, A H Hansen, *Fiscal Policy and Business Cycles*, p 287

that are needed to stimulate private investment. If deficit spending has to be continued for a long time, it may impair rather than stimulate private investment owing to the widespread belief that a continuous increase of government debt will, eventually, lead to an unbearable tax burden or even to inflation. We shall discuss this problem later on.⁸ It suffices here to state that this fear exists whether or not the theory behind the fear is sound.

Should private investment get under way rather late (when we approach bottle-necks and when the supply of loanable funds is no longer completely elastic), then we can hardly expect that the expansion process can be sustained by private investment alone and that the increase in private investment will be strong enough to outweigh the depressive effects of the tapering off of government deficit spending. Deficit spending which was intended to be temporary will, then, have to be continued indefinitely to avoid a contraction process.

It is possible to argue, on the other hand, that deficit spending can have the effect of an igniting spark only if it is used courageously, that is, in sufficiently large amounts. Thus it is not an easy task to manage a pump-priming program. If the money is spent too sparingly, it may fail to exert a really stimulating effect upon private investment; and if it is spent too courageously, it may be impossible to discontinue the spending program later on without starting a process of contraction.

But even under most favorable conditions (that is, when deficit expenditures cause a revival which continues and develops later on under its own momentum) we can hardly expect more from a pump-priming program than the initiation of a period of prosperity. There is nothing in a pump-priming program which would guarantee a well-proportioned expansion which would terminate in a stable full-employment equilibrium.

⁸ See section 6, below.

4. COMPENSATORY SPENDING

"Deficit spending" is often criticised because it seems to imply that expenditures are made which are not absolutely necessary and at a time when the government is supposed to cut down its normal expenditures and not to add to the tax burden.

How can we increase the monetary demand in the economy without spending money for additional (that is, less useful) purposes and without increasing, at the same time, the cost of production of private business? The answer is that we can try to shift normal government expenditures from prosperity to depression periods and to finance these government expenditures largely through the borrowing of loanable funds which are newly created or would otherwise be hoarded. These funds are to be paid back during the prosperity period through a corresponding over-balancing of the budget.

It goes without saying that many government expenditures are current and cannot be postponed. But important investment expenditures such as for public buildings, social housing, road construction, flood control, or the conservation of natural resources, can be blue-printed in advance and carried through, in the main, when private investment is low. These public investments are non-competitive with private industry, of undeniable usefulness, and capable of being planned in advance so that they can be started at a moment's notice.

Deficit spending in times of depression, though counter-balanced by an over-balancing of the budget during prosperity, is not a very popular proposal. The public may fail to see how government authorities could successfully undertake what private investors, depending on profit expectations, cannot dare to do. And even public officials will tend to react as the public does, that is, spend in good times when tax revenues are high and cut down expenditures when the tax income decreases and relief expenditures increase.

An anticyclical fiscal policy requires that we give up these old-fashioned ideas and that we consider deficit budgeting during depressions a virtue rather than a sin.¹⁰

From the standpoint of monetary policy it is quite obvious that the government investment during depression should be financed by borrowing. Only if we were able, according to J. S. Mill's remark, to tax away and spend those savings which the "periodical sweep," called a commercial crisis, would destroy anyhow,¹¹ could we maintain a given level of income without deficit spending. But while such taxation might help to keep money in circulation, it could hardly be carried far enough without impairing private initiative. The main part of public investments during a depression has to be financed by increasing the government debt. Whether government securities are bought with savings which otherwise would be hoarded, or whether they are sold to banks which cannot find enough private demand for their loanable funds, is of secondary importance. In both cases the monetary circulation is increased, or prevented from decreasing, and, thus, it is less likely that a dangerous self-deflation will develop.

Thus it is quite obvious that a counter-cyclical spending program contains deficit-budgeting as an essential feature. The counterpart of a policy of deficit budgeting during depression is the over-balancing of the budget during prosperity. Tax revenues increase and relief expenditures decrease during the prosperity period. If at the same time public investments are kept as low as practicable, it is possible that the public debt, incurred through the period of deficit-budgeting, can be repaid. The effect of these repayments depends on the tax structure and the income and wealth distribution of the country. It is essential to see that the process of paying off an internal debt is basically a change in the income distribution of the

¹⁰ See G. Myrdal, "Fiscal policy in the business cycle," *American Economic Review*, Vol. 29, March, 1939, p. 184.

¹¹ See footnote to p. 394, above.

country, the money being transferred from tax payer to bond holder. Whether this transfer will increase consumption or saving cannot be ascertained on *a priori* grounds. It is to be assumed, however, that saving will increase at the expense of consumption. Unless "former security holders in the upper income groups look with equanimity upon impairment of their capital, they cannot properly regard the cash received through the redemption of their securities as an addition to disposable income."¹²

One may assume, therefore, that the retirement of the public debt, which was incurred during the depression, will produce "deflationary" effects during a prosperity period. Whether these effects are welcome or not depends on the character of the private investment boom. If the boom is only feeble, if it suffers from a lack of investment opportunities, then it may not be advisable to retire debt. If, on the other hand, the process of expansion is vigorous, then it may be desirable to use a debt retirement policy, coupled with great restraint in public investment expenditures, as a deflationary ("retarding") brake.

Anticyclical spending requires a most careful diagnosis of the cyclical position in which we find ourselves at each point of time. "To make such a diagnosis presents a problem soluble for the past, with hindsight, but hardly for the present, without the gift of foresight."¹³ If fiscal policy is given the task of offsetting the cycles of private spending, and if unemployment is *not* to be taken as a sufficient criterion for deficit spending, it will be difficult for the government to determine just when it should begin to over-balance the budget. If the existence of unemployment is always accepted as a justification for deficit spending, deficit spending may well continue through-

¹² B. F. Haley, "Economic consequences of deficit financing," *American Economic Review*, *loc. cit.*, p. 78.

¹³ Fritz Machlup in *Financing American Prosperity, A Symposium of Economists*, New York, The Twentieth Century Fund, 1945, p. 455.

debt without considering concomitant changes in national income.

6. ALLEGED DANGERS OF AN INCREASING PUBLIC DEBT

It is often argued that permanent deficit spending would be inflationary. At first sight the argument seems convincing and economic history seems to prove the case. But while it cannot be denied that an increasing government debt will be inflationary when it is financed in an inflationary way, it can easily be shown that an increasing debt is, in itself, not necessarily dangerous from a monetary point of view.

The discussion of the effects of an increasing government debt is full of popular fallacies which are due to the habits of applying principles of private finance to problems of public finance, and of breaking off the argument at an early point without considering the general effects of public spending upon national income and employment.

It is essential to consider the following points.

(1) Our analysis of the multiplier and the acceleration principle has shown that public deficit spending (just as well as private deficit spending) may lift the national income to a higher level and maintain it at that higher level. As far as this is the case, the spending program does not "cost" anything. It merely makes use of unemployed factors of production. Government deficit spending is, in this case, a net advantage. It does not shift the burden to the future; it is no burden at all. This statement remains equally true if government deficit spending prevents factors of production from becoming unemployed.¹⁸

(2) It is strange that criticism is always directed one-

¹⁸ See the excellent paper on "Public debt and the national income" by Evsey D. Domar in *Public Finance and Full Employment, Postwar Economic Studies*, No. 3, December, 1945, Board of Governors of the Federal Reserve System, Washington.

sidedly against public debt and not also against private debt. We refer to the attitude of some people "who praise a private company which borrows money to build houses, for 'raising capital,' but who condemn a public authority which does exactly the same thing, for 'incurring debt.'"¹⁶ It is true that the services of the government cannot be sold, as a rule, for a market price and that the government is, therefore, largely dependent on tax revenues. But this must not lead to the erroneous belief that government expenditures are basically parasitic and that public investment is carried through at the expense of, and is therefore detrimental to, private investment. "Government is not maintained out of the surplus of private enterprise. Each segment contributes to the total flow of real income and each takes its share out of the income stream."¹⁷ While private persons and corporations will have to pay the taxes with which the debt is serviced and retired, they pay these taxes out of incomes which may be much higher thanks to government expenditure.

(3) Taxes which are used to pay interest on the debt or to retire the debt go right back to the tax payers as a group. The national income is not decreased. The transfer of money from tax payer to bond holder may, however, influence income distribution, consumption, and saving.

(4) An increasing government debt is not, in itself, inflationary. We have to distinguish different cases.

(a) If deficit spending increases the money supply at a time of substantial underemployment of economic resources, it can be expected that the increase in the flow of money (MV) will be compensated in its general effect upon prices by an increase in the trade volume (T). Thus, even if the funds for deficit spending are borrowed from the banks or from individual balances which otherwise would have remained idle, deficit

¹⁶ Quoted in Seven Harvard and Tufts Economists, *An Economic Program for American Democracy*, New York, The Vanguard Press, 1938, p. 66.

¹⁷ See A. H. Hansen, *Fiscal Policy and Business Cycles*, p. 152.

spending will not tend to increase prices in general before we reach bottle-necks of production.

(b) After bottle-necks of production have been reached, government deficit spending can still be continued without inflationary consequences provided that the purchasing power spent by the government is taken from current voluntary savings. Deficit spending of this kind does not add to the circulation of money; it simply replaces private spending by government spending.

(c) Assuming that public deficit spending has raised the national income as near as possible to its "full" employment level and that the national income can be maintained at this level only by continued deficit spending, must not this continuous increase of the public debt have inflationary effects? Though this question has already been answered in the negative under (b), it can be clarified further by reference to our discussion of the multiplier. In chapter 21 we have seen that, assuming continuous primary expenditures, the national income reaches its new level when the saving out of the newly received income becomes equal to the primary investment. If the primary investment is \$100 and the marginal propensity to consume $\frac{2}{3}$, the multiplier will be 3 and the new income level \$300 higher than the former level. And since, according to our assumption, $\frac{1}{3}$ of the newly received income has not been spent on consumers' goods (that is, has been saved), the savings are exactly equal in amount to the primary expenditures. The continuation of the primary expenditures can therefore be financed out of savings. Theoretically we do not need any further credit creation for the continuation of the primary expenditures.

With these remarks we do not want to suggest that a rising public debt could not be harmful. It may indeed involve serious dangers, which must be carefully considered if the net effect of a deficit spending program on employment and national income is to be appraised. Among the possible

detrimental effects of a growing national debt the following should be emphasized

(1) An increasing public debt may create a greater inequality of income and wealth, because the ownership of the debt is concentrated, directly or indirectly, in the hands of the upper income groups. A greater inequality of income distribution may increase the propensity to save and lead to unemployment if sufficient private investment opportunities are lacking.

(2) An increasing public debt increases the number and the wealth of rentiers, that is of people who have a legal claim to a fixed amount within the money income of the nation. Obviously, the 'risk of fluctuating national income is the more concentrated upon venture capital income the larger the proportion of fixed capital income to total income'¹⁸ The tax burden, furthermore, if calculated only in relation to taxable rather than total income, might become so heavy (upon high income brackets) as to constitute an increasing handicap to investment.

(3) An increasing public debt makes it more difficult to use variations of rates of interest as an instrument of monetary policy since the economy becomes increasingly sensitive to fluctuating security prices.

(4) An increasing public debt which would filter an increasing part of the national income through fiscal channels may become incompatible with a system of free private enterprise. Even if unfounded this very fear might have unfortunate effects on private investment.

7 THE FULL EMPLOYMENT BUDGET

Since employment rests on expenditure, it has been proposed that the government should be made responsible for a level of aggregate expenditure large enough to ensure a high

¹⁸ H. S. Ellis in *Financing American Prosperity*, p. 139.

level of employment.¹⁹ The main instrument of such a policy would be a new type of budget "which will be concerned with income and expenditure of the community as a whole, not only with public finance, . . . will take the man-power of the country as a datum and plan outlay to that datum rather than by consideration of financial resources."²⁰

When the government is made responsible for the total flow of expenditure it has, first of all, to analyse the different sources of expenditure. If aggregate expenditure from these sources is not large enough to employ those who want to be employed at prevailing wage rates, the government has to take steps which ensure increased outlays so as to avoid deflation, depression and unemployment. If, on the other hand, aggregate expenditure tends to outrun the economy's power to produce, the government has to curtail the total demand for goods and services in order to avoid price inflation.

The main elements which make up the aggregate flow of expenditure are²¹: private consumption expenditure, C ; private investment expenditure, I ; public expenditure out of tax revenue, R ; public expenditure out of loans, L ; and the balance of international payments, B , which may either be positive (excess of exports over imports) or negative (excess of imports over exports). Aggregate expenditure, $C+I+R+L+B$, should be equal to F , the output capacity of the economy at or near full employment. If F is larger than aggregate expenditure, E , the difference would be U or unemployment.

¹⁹ See the *Full Employment Act of 1945* (Murray Bill); the *British White Paper* (Cmd. 6527) on *Employment Policy*, New York, Macmillan, 1944; William H. Beveridge, *Full Employment in a Free Society*, New York, W. W. Norton, 1945; Henry A. Wallace, *Sixty Million Jobs*, New York, Simon and Schuster, 1945.

²⁰ W. H. Beveridge, *Full Employment in a Free Society*, p. 30.

²¹ We follow mainly the treatment in Beveridge, *Full Employment in a Free Society*, pp. 136-142.

If the aggregate expenditure is not large enough to avoid unemployment, the government is charged with the responsibility to propose ways and means by which total outlay can be increased. The government can try to increase C or I in various ways—for instance, through changes in the tax structure; or it can try to increase exports and reduce imports in order to influence B . These policies may push E upwards and increase employment. Assuming, however, that they are to be carried out under the directive that total public expenditures and total tax revenues are to stay the same, the possibilities of these policies are very limited. "The very adjustments which will release consumption by rendering the tax system more progressive will also tend to deter investment expenditures by making investment appear less attractive."²²

However, the government may try three more promising methods of influencing aggregate expenditure. They are "(a) reducing the tax rates without reducing expenditures, thus increasing the deficit; (b) increasing expenditures without increasing the tax rates, thereby increasing the deficit; (c) increasing expenditures and increasing also the tax rates enough to raise sufficient revenue for the expenditures."²³

Of these possibilities the third seems to be the most conservative since it does not imply an increased public deficit. In reality, however, this method would involve a much greater expansion of government spending than the two deficit-increasing methods. This is due to the fact that government expenditures which are financed by tax revenues increase total expenditure, E , only a little, if at all. Money is shifted from the tax payer to the government, and the increase in R is therefore largely compensated by a decrease in C or I or both. Total expenditure would be increased only to the

²² Richard A. Musgrave in *Public Finance and Full Employment*, p. 8.

²³ Machlup in *Financing American Prosperity*, p. 443; see also Beveridge's classification in *Full Employment in a Free Society*, p. 142.

extent that payment of the higher taxes would be partly at the expense of saving, rather than wholly at the expense of consumption, and that the increased taxes would not reduce private investment by more than they reduce saving. "In a serious depression, elimination of the bulk of unemployment by this method would probably require exorbitant increases in expenditures and of tax rates, implying a drastic redistribution of income, and the system would soon become incompatible with a free-enterprise economy. . . . This may sound paradoxical to many, for what most conservatives are afraid of is a deficit and a growing public debt. Their obsession with the public debt may thus lead them into a much more dangerous alley."²⁴

By reducing taxation while maintaining public expenditure the government may stimulate either C or I . This method is less reliable than the use of a deficit for increased government expenditure. When the government spends newly created or dishoarded money, the national income is raised by the amount spent, and probably by a considerably larger amount owing to the multiplier effect. When the government attempts to stimulate I or C through tax remission, the effect is less certain, because I or C may not increase by the full amount of the tax reduction. To achieve the same increase in the national income, the tax-reduction method requires, therefore, a larger budget deficit than the deficit-spending method. The tax remission approach, however, "provides for a minimum of public spending and leaves the overwhelming portion of total effective demand to the private sphere."²⁵

It goes without saying that the components of E in a full employment budget are interdependent. We have already seen that an increasing R may lead to a decreasing I or C . Similarly an increasing L will lead, *via* an increasing I or C ,

²⁴ Gottfried Haberler in "Five views on the Murray Full Employment Bill," *Review of Economic Statistics*, August, 1945, pp. 108-109.

²⁵ Machlup in *Financing American Prosperity*, p. 446.

to an increasing R , since higher incomes mean higher tax revenues. This interdependence is not easy to reduce to quantitative estimates, because it involves consideration of multiplier and acceleration effects and of elusive psychological reactions.

The full employment budget has the advantage that it commits the government "to a periodical and continuous assessment of the employment situation."²⁶ Only the government can undertake this important task. A full employment budget should certainly not be regarded as a panacea; but it provides an over-all picture of the employment situation of the country which is indispensable if the different factors which influence the employment level are to be properly co-ordinated. The idea of such a budget may help systematize our efforts even if it does not, in itself, ensure full employment; nor should it hastily be overstated as ensuring a "right to useful, remunerative, regular, and full-time employment."

Enthusiasm over this recent, fascinating result of economic analysis should not make us forget that the details of a full employment policy are as complicated as ever. "The danger is rather that policies in terms of aggregate expenditure will be overdone and applied to cases for which they are inappropriate, and that the preoccupation with these policies will cause a neglect of other, equally important matters. It is time, therefore, to shift emphasis away from the approach in terms of overall expenditure to certain refinements."²⁷

In fairness to the proponents of a full employment budget it must be said that they do not assert that a sufficient amount of deficit spending is all that is needed to produce full employment. Full employment is envisaged as the result of a successful co-ordination of many different policies concerning

²⁶ A. H. Hansen in "Five views of the Murray Full Employment Bill," *Review of Economic Statistics*, August, 1945, p. 102.

²⁷ Haberler, *Review of Economic Statistics*, August, 1945, p. 107.

wages, prices, monetary circulation, the mobility of labor, public spending, foreign trade, and monopolies. Nor do we have to interpret "full" employment as more than a reasonably high level of employment with liberal allowances for frictional and seasonal unemployment. As a matter of fact, the idea of a full employment budget may be subscribed to by economists of rather widely diverging viewpoints. A full employment budget may be intended merely to create and maintain a healthy alertness on the part of the government; it may be another expression for anticyclical spending; or it may indicate a resolution to stamp out unemployment even though the system of private enterprise might have to be changed fundamentally in the process.

Maintenance of full employment would eliminate the business cycle in terms of real national income and, of course, employment. But if private enterprise is to be maintained, the cycle would probably not disappear, in spite of full employment; it would still be visible in the counterbalancing variations of I and L , with minor variations in the other components of E . Only experience will show to what extent such compensatory action is practicable. It may well be that private investment needs more leeway in terms of an elastic supply of factors of production than the maintenance of full employment will permit. An economy which rests on free private enterprise requires continuous adjustment to changing conditions. This adjustment can only be accomplished when relative price changes are uninhibited and the factors of production reasonably mobile. Full employment may easily tend to reduce the mobility of both prices and productive resources. These considerations lead squarely into the problem of inflation.

We have already seen that the economy is rather vulnerable near the full employment level.²⁸ The peculiar inflationary

²⁸ See above chapter 22, section 3.

danger of a full employment economy is due to the following factors:

(1) If full employment means "having always more vacant jobs than unemployed men"²⁹ the bargaining power of labor will be greatly increased while production cannot be expanded any further. "Irresponsible sectional wage bargaining may lead to inflationary developments which bestow no benefit on the working class. . . . There is no inherent mechanism in our present system, which can with certainty prevent competitive sectional bargaining for wages from setting up a vicious spiral of rising prices under full employment."³⁰

(2) A more enlightened wage policy on a national basis can only be expected, however, when other organized groups are equally willing to abstain from pressing for higher shares in the national income. Wartime experiences in this respect do not apply any longer. The self-discipline which economic groups exercise during a war emergency cannot be counted upon in peacetime; nor can price controls and rationing be put into permanent operation unless we are willing to change the very foundations of our economic system:

(3) Near full employment the supply of commodities becomes rather inelastic; costs for additional output rise sharply. To rely on price adjustments may mean to invite price inflation. The alternative would again be price control, which is alien to our economic system.

(4) Orthodox anti-inflationary monetary policies are probably incompatible with the policy of deficit spending which is more or less implied in the idea of a full employment budget. We have already seen that a large public debt tends to create a bias against upward adjustments of interest rates. The role of monetary policy in a full employment economy is not yet clear. The very extensive literature on full employment has so

²⁹ Beveridge, *Full Employment in a Free Society*, p. 18.

³⁰ Beveridge, *ibid.*, p. 199.

far avoided this important problem,³¹ perhaps because it has been temporarily eliminated through wartime controls.

(5) Adequate *aggregate* spending cannot eliminate partial unemployment without causing inflation. "If unemployment is concentrated in certain 'depressed' areas and industries, while there is full employment elsewhere, a general increase in expenditure would serve only to drive prices up in the full employment area, without having much effect on the depressed industries . . . This could, of course, not happen if labor were sufficiently mobile, but experience shows that this condition is rarely fulfilled."³²

8. GOVERNMENT ACTIVITY AND PRIVATE ENTERPRISE

But even if the inflationary dangers of a full employment economy could be avoided, we would not necessarily have to come to the conclusion that deficit spending should be embarked upon whenever the full employment budget would show that F is greater than E . That a political measure is not necessarily inflationary does not mean to say that it should be used.

The questions concerning chronic depressions and continued deficit spending are more than purely monetary problems. They concern the very foundations of our social-economic system. With increasing government spending we increase the public sector of our economy and change the economy from a "free" capitalist economy to an economy which is partly "planned."

We do not intend to discuss the question of whether the principles of government planning and of free private enterprise can be blended successfully. It may be pointed out, how-

³¹ See, however, League of Nations, *Economic Stability in the Post-War World*, Report of the Delegation on Economic Depressions, Part II, Geneva, 1945, chapter XIV.

³² Haberler, *Review of Economic Statistics*, August, 1945, p. 107.

ever, that it should be possible to leave the economy essentially free to expand under the impulse of private investment in spite of large spending programs. It should be possible to have in reserve not only those deferred government expenditures which a counter cyclical spending program implies, but also further projects, blueprinted in advance, which could take the place of private investment in case private investment should prove too weak to absorb abortive savings and to maintain national income and employment at a reasonable level.

It is hardly advisable, however, that such a policy of deficit spending should try to maintain a "full employment" level. A huge amount of continuous government spending may reduce the investment potential of the economy to a point from which it would be impossible to start big private investment projects, to say nothing about the psychological effects of continuous deficit spending upon private profit expectations and private initiative. It is very possible that modern industrial progress is so incompatible with a state of economic equilibrium that economic equilibrium is perforce a very poor starting point for great private investment programs.

That the maintenance of "full employment" through deficit spending is not necessarily the best policy if we wish to maintain a strong private sector of the economy does not mean to say that we have to give up deficit spending altogether. To dispense with deficit spending could easily mean that the economy would have to suffer from the destructive effects of self-deflation.

Between the two extremes of a laissez-faire economy and an economy which maintains full employment at the expense of a constant decrease of its "private" sector there may be many combinations of private and public investment which set a lower limit to the contraction process of a depression but do not operate to maintain a full employment equilibrium.

Professor Hansen suggests such an intermediate goal because "it interferes less with established institutional arrangements

and leaves to the functioning of free enterprise itself the problem of fuller employment beyond the minimum level. In a manner it thus divides the field between governmental activity and the activity of private enterprise. It becomes the function of government to establish a minimum below which the health, continuity, and workability of the economic system is endangered, and indeed the workability of government itself and particularly of international political relations. If a reasonable bottom had been put to the great depression throughout the world, . . . there might very probably have developed no successful Hitler movement and no new outbreak of warfare."³³

9. WAR AND INFLATION

Our arguments concerning deficit spending and the public debt can be used to analyse the monetary problems of a war economy. Let us assume first that a country suffering from under-employment embarks upon a defense program and then that deficit expenditures for war materials have to be further increased after "full employment" has been reached.

A few facts are quite obvious. As long as the country has plenty of unused resources available, it can expand the production of armaments without having to reduce consumption. Consumption will even increase as the increased production of war materials, financed by credit expansion, increases the national income. The simultaneous increase in the production of armaments and consumers' goods gradually absorbs the unemployed resources. Bottle-necks appear and prices begin to increase. If serious inflation is to be avoided, it is imperative that care be taken with further credit expansion. The existence of bottle-necks indicates difficulties for the further increase in the national income produced. It may be possible to break some of the bottle-necks through special measures such as

³³ See A. H. Hansen, *op. cit.*, p. 73f.

priorities or allocations. But the situation certainly becomes the more difficult, the more armament production has to be increased and the less unemployed factors of production are available.

As the production of armament as well as that of consumers' goods tend to increase further, it is unavoidable that increasing demand will bid up the prices of factors of production. With increasing wages consumption will tend to increase. If this process is stimulated by an elastic credit supply, it may develop into outright price inflation.

Before we inquire into the means by which such inflationary developments can be avoided, we must impress upon our selves as clearly as possible the simple truth that, full utilization of the factors of production being reached, we cannot expand both war production and the production of consumers' goods at the same time. We may be able to increase the social product temporarily above the point of optimum utilization under peace time conditions. If this extra effort in the field of production does not supply enough additional armaments, we have to cut down consumption.

A temporary increase in our productive effort is possible through increased utilization of plant and equipment by seven day and 24 hour schedules, through the deferment of replacement or of the expansion of capital in non essential enterprises, through the use of labor reserves, and through the elimination of waste.

From the monetary standpoint these efforts towards increased production are important as an increase in the volume of trade which may counteract the inflationary effects of credit expansion. But we have to remember that these efforts are limited, that armaments do not enter the trade volume as finished goods like consumers' goods, and that they do not help to increase the trade volume in the future as do peace-time investment goods.

It has to be considered, furthermore, that extra efforts,

though they may succeed in producing an increased output, will also mean increased income through additional employment and overtime pay. The extra effort is supposed to increase, directly or indirectly, the production of armaments. Those who make the extra effort and derive increased income from it, must, therefore, be prevented from increasing their consumption or, alternatively, there must be an offsetting decline in the consumption of others. If the increase in production does not suffice to supply the extra amount of war material needed, total consumption has to be cut down still further.

The necessary reduction in consumption can be achieved in many different ways. Inflation is one way. If the national income increases because of the war effort and if the actual output of consumers' goods decreases, consumers' goods prices will go up. As prices go up, the extra receipts will swell sellers' incomes. With higher incomes the sellers will be able to bid up prices still further in the next income period unless the government takes away these extra profits through taxation or borrowing. If the profiteers from inflation can be used as "tax collectors for the Treasury,"³¹ the inflationary process can be kept within limits because the government finances the war effort, to this extent, with money which had already been in circulation.

A new difficulty arises, however, as soon as we consider the probability that the workers will ask for higher wages and that they will be at least partly successful with their demands. That they should be fully successful (that is, that the increase in wages should compensate them fully for the rise in prices) is not at all likely, because the output of consumers' goods has declined. Groups of wage earners, however, may be able to improve their relative position at the expense of other sections

³¹ See J. M. Keynes, *How to Pay for the War*, New York, Macmillan, 1940, chapter 9.

of the community. Wages and prices will chase one another upwards, and the government will need increasing revenues to finance a given physical production program.

It is possible that the inflationary process will be limited and controllable "if prices should rise relatively to wages to the extent necessary to divert the right amount of working class and other incomes into the hands of the profiteers and thence into the hands of the Treasury, largely in the form of taxes and partly in the form of extra voluntary savings by these profiteers."³⁵

But it is also possible that the inflationary process will gather momentum. Conscious of a general increase in prices the public may reduce saving thus plugging up one of the most important non-inflationary sources of revenue for the government. Later on the public will perhaps start to spend money more quickly as prices are expected to be higher in the very near future (that is, the velocity of circulation of money will increase). Once this stage of an inflation is reached, it will become impossible to finance a substantial part of the armament expenditures through taxation since the amounts collected will depreciate quickly on their long trip from the tax payer via the administration to the producer of war material. When taxation and private purchases of war bonds decrease in importance, the government will have to rely more heavily on the creation of bank credit.

Since we have already discussed the economic and social effects of an inflation,³⁶ we now take it for granted that a substantial inflation should be avoided. How to avoid inflation under the impact of increasing war expenditures upon a full employment economy is therefore an eminently important monetary question. But the answer to this question cannot be given by monetary theory alone nor can the forces involved be controlled exclusively by the monetary authority.

³⁵ Keynes, *Ibid.*, p. 67.

³⁶ See chapter 2, section 2; chapter 17, section 5; chapter 20, section 3.

We shall try to enumerate, and to comment briefly on, the various ways and means by which consumption can be reduced without inflationary consequences. The situation is assumed to be such that many bottle-necks have already been reached and that the war effort has to be speeded up at the expense of consumption.

(1) *Monetary controls.* In dealing with anti-inflationary measures it is only natural to ask first of all whether or not measures of monetary policy would be sufficient to handle the problem. If the central bank of the country can effectively control the reserves of the commercial banks (through changes in reserve requirements and open market policies), it can effectively check an inflationary credit expansion. If avoidance of inflationary price developments is all we are interested in, the monetary controls might be satisfactory. The supply of loanable funds would be kept sufficiently limited, and interest rates would rise to the level which equalizes the demand for and the supply of loanable funds.

The prime objective of a war economy, however, is not to avoid inflation but to secure the necessary supply of war material. This major problem is not solved by restrictive monetary measures. It has been said that the task of finance in war is to see that nothing is decided on financial grounds.³⁷ In war times we cannot accept rates of interest as a device to select the more important investment opportunities according to anticipated profits. The most important activities are undertaken without regard to profits. The government outbids private competitors; its wartime demand is inelastic, that is, neither interest rates nor product prices can check the purchasing of war supplies. Trying to reduce the government's demand through high rates of interest would unnecessarily increase the cost of financing the war.

(2) *Taxation.* The monetary importance of taxation rests

³⁷ "The humbug of finance," *The Economist*, London, May 3, 1941, pp. 579f.

upon the fact that money already in circulation will be handed over to the government at the expense of private consumption or private saving. Only if the purchasing power involved would have been hoarded by the tax payer, can tax-financed government expenditures have inflationary effects. Compared with loans, taxes have the advantage of being cheaper. They do not increase the government debt and do not lead to future transfer payments from taxpayer to bondholder.

We cannot possibly discuss the tax problem in all its implications. May it suffice to point out that taxation may reach a point where it defeats its own purpose by seriously hampering the productive efforts of the nation. It is well nigh impossible that the government will be able to gather together enough funds by taxation alone. Taxation, furthermore, may not suffice as a device for controlling special consumers' expenditures. In a war economy we are not only interested in a general reduction of consumption but also in cutting down the consumption of those special articles which compete with war production. A tax program which is supposed to render the highest possible revenues can hardly be used at the same time to differentiate carefully between the different kinds of consumption; nor can it be used, from a social point of view, to equalize incomes to such an extent that other war time measures, like rationing, can be dispensed with.

(3) *Voluntary loans.* Since we have already dismissed some of the popular fallacies concerning an increasing government debt, we can recommend internal loans as a non-inflationary source of government revenue, provided that the following conditions are fulfilled: (a) the purchasing power with which the government securities are bought must not be newly created or dishoarded; (b) the securities bought must not be used as collateral for loan expansion to private borrowers; and (c) the government securities must not merely be bought with funds which have been procured through the sale of securities or through the withdrawal of savings deposits.

Voluntary loans increase the purchasing power of the government at the expense of the purchasing power of the public; but we cannot expect that they will reduce private consumption sufficiently, especially in the lower income groups whose members are not able to save substantial parts of their incomes on a voluntary basis.

(4) *Forced loans.* If voluntary loans cannot transfer enough purchasing power from the public to the government and if they are not able to cut down consumption sufficiently, a system of compulsory saving can be introduced which, similar to social security schemes, takes away present purchasing power from the consumer against the promise of future payments.³⁸

This plan, if politically feasible, has the advantage not only of cutting down consumption to the desired degree and in all income groups, but also of releasing private purchasing power when the war is over and when the economy faces the dangers

³⁸ See J. M. Keynes, *How to Pay for the War*, pp. 20-51. "The appropriate time for the ultimate release of the deposits will have arrived at the onset of the first post-war slump. For then the present position will be exactly reversed. Instead of demand being in excess of supply, we shall have a capacity to produce in excess of the current demand. Thus the system of deferment will be twice blessed; and will do almost as much good hereafter in preventing deflation and unemployment as it does now in preventing inflation and the exhaustion of scarce resources. For it is exceedingly likely that a time will come after the war when we shall be as anxious to increase consumers' demand as we are now to decrease it. It is only sensible to put off private expenditure from the date when it cannot be used to increase consumption to the date when it will bring into employment resources which otherwise would run to waste. If the deposits are released in these circumstances, the system will be self-liquidating both in terms of real resources and of finance. In terms of real resources it will be self-liquidating because the consumption will be met out of labor and productive capacity which would otherwise run to waste. In terms of finance it will be self-liquidating because it will avoid the necessity of raising other loans to pay for unemployment or for public works and the like as a means of preventing unemployment." Keynes, *op. cit.*, p. 46.

of depression and self-deflation. The plan has psychological advantages over a tax plan of similar scope and structure, though it would reduce consumption just the same. The scheme is, however, open to the objection that the forced saving from current income imposed upon the richer classes could always be avoided by dis-saving.³⁹

(5) *Wage stabilization.* Professor Harris has pointed out that "at the core of the inflationary process is the attempt by each group in the community to raise its own income, in the hope that its income will rise more than the cost of living."⁴⁰ This attempt, if successful, may increase prices indefinitely and should be avoided. Wage stabilization has been proposed as the most fundamental anti-inflationist measure. It has to be noticed, however, that the functioning of the capitalist economy in peace-time rests upon relative price and wage movements. It is, therefore, only natural that shortages in special labor markets should lead to higher wage rates. If we freeze wages in order to avoid inflationary developments, we have to replace the price system which allocates the factors of production through price movements by a system of enforced allocation.

A free pricing process on the labor market does not lead to inflation if the monetary sources of inflation are plugged up. But it may lead to grave social problems if the distribution of income is substantially changed without such protection of the lower income groups as is offered by the different forms of commodity rationing. A complete stabilization of wages, furthermore, would not in itself avoid inflation. Assuming that less and less consumers' goods can be produced due to the war effort, it is not enough to keep wages stable. It is necessary

³⁹ "A plan to avoid inflation," *The New Statesman and Nation*, Nov. 2, 1940, p. 445; Horst Mendershausen, *The Economics of War*, New York, 1940, p. 142.

⁴⁰ Seymour E. Harris, *The Economics of American Defense*, New York, W. W. Norton & Co., 1941, p. 189.

that the aggregate demand for consumers' goods be sufficiently reduced.

(6) *Price-fixing and rationing.* Inflationary developments of the bottle-neck type (that is, price advances which are not due to monetary causes but rather to relative scarcities which are caused by the sudden increase in the demand for special raw materials and special kinds of labor) can be handled by price controls. Price fixing, however, implies that the price is kept below the price which would be determined by demand and supply on the free market and that the demand existing at the artificial price can therefore not be satisfied by the supply. Price fixing will lead to a haphazard distribution of the commodities or factors in question if it is not accompanied by priority regulations and rationing.

Rationing of selected commodities, however, has the effect of directing excess purchasing power (which cannot be spent on the low priced rationed goods) into the markets of commodities which are not rationed. Their production becomes more profitable than the production of the rationed goods whose prices are fixed at an artificially low level, and the whole productive effort is given a wrong twist unless almost all essential goods are included in the rationing and price fixing scheme.

Rationing, however, fulfills three important functions. (a) It is a necessary corollary to price fixing, and price fixing is, in turn, most important if we want to enable the members of the lower and lowest income groups to buy the essential commodities. (b) It prevents, if successfully managed, speculative buying and the excessive accumulation of stocks of goods. (c) It makes possible a qualitative control of consumption. We are not alone interested in a reduction of consumption in general but especially in a reduced consumption of those commodities which compete most seriously with armament production.

(7) *Comprehensive rationing.* Selective rationing of the above mentioned type tends to include more and more commodities

to prevent the diversion of purchasing power and productive energies into other fields. The problem can be simplified if we allow each consumer to spend a certain amount of money per period of time on a group of commodities. Prices of commodities within the group can change, but aggregate prices of the goods in question cannot increase (provided that the figures are appropriately chosen) since total demand is limited. The consumer remains free, within limits, to buy more cigarettes if he dispenses with chocolate, and production can adjust itself to changes in demand.

From this type of rationing it is only a step to the idea of restricting the total expenditure on consumers' goods permitted to each individual.⁴¹ This might be done by issuing coupons. A man with \$200 monthly income would, for example, receive coupons worth only \$125 with which to purchase consumers' goods. It is possible to argue that this type of rationing would remove the necessity of price control since a general rise in prices would be avoided once the total amount of consumers' purchasing power was sufficiently limited. The danger that individual prices would be driven up too much is not completely eliminated, though it is probable that even prices of goods which face a rather inelastic demand would not increase excessively if all consumers were sufficiently restricted in their total expenditures. Selective rationing as a supplementary device within a scheme of comprehensive rationing is possible and may be necessary.⁴²

⁴¹ See M. Kalecki, "General Rationing," *Institute of Statistics*, Oxford, January 11, 1941, pp. 1-6.

⁴² Comprehensive rationing, of course, does not in itself provide the necessary purchasing power for the members of the lower income groups (since the coupons are not money but are used together with money). It is, therefore, possible, that the members of the lower income classes cannot make use of all their coupons. In this case the government could buy their unused coupons with the result that anyone unable to use a certain part of his coupons would be able to sell half of the unused coupons to the govern-

Once the total amount of expenditures for consumers' goods is regulated, it is comparatively easy to transfer any desired amount of the remaining part of the national income to the government. If this is done through loans, the forced loan plan and the comprehensive rationing scheme do not differ very much as to the final result. It may be necessary, however, to make sure that not too much of the excess purchasing power (not to be used for consumption purposes) is absorbed by private industry. This tendency may not be very strong anyhow since the limited purchasing power which may be spent for consumers' goods would regulate, indirectly, the production of consumers' goods.

Which combinations of the above mentioned policies should be used in procuring the necessary purchasing power for the government and in cutting down consumption expenditures depends not only on the size of the war effort in relation to available resources but also on the social consciousness with which we try to distribute the load between different income groups. And since the different income groups are politically more or less articulate, the choice boils down to a question of political expediency.

10. THE TRANSITION PERIOD

The transition from war to peace is a period of difficult economic adjustments to rapidly changing conditions. The decrease in government expenditures for war goods and the disbanding of the armed forces tend to create unemployment and to contract the national income earned. These are deflationary forces. On the other hand, the deferred demand for civilian goods, such as automobiles, houses, industrial equipment and inventories, which is financed out of large holdings

ment and by doing so obtain the purchasing power necessary for using the other half. See M. Kalecki, "Inflation, wages and rationing," *The Banker*, London, October, 1941.

of liquid assets by both consumers and producers, while the supplies are still short, causes strong inflationary pressures. It is quite impossible to predict the relative strength of these inflationary and deflationary forces. They are both at work; and both are dangerous even if their combined effects should cancel out in terms of an average price level.

The government's policies during the transition period should be flexible. The coincidence of inflationary and deflationary dangers may require measures which to the superficial observer will seem inconsistent with one another. To counteract the deflationary effects of transitional unemployment, of shorter working hours and of downgrading of jobs, it may be advisable to increase wage rates wherever increasing efficiency permits the absorption of increasing wage costs. At the same time it will be necessary to continue price controls where abnormal shortages persist. Some price adjustments will be unavoidable. But where higher prices have no essential function to fulfill, where they are not needed to steer production in the right direction, they might lead only to useless and harmless profiteering. Price controls should be abolished where demand and supply are in equilibrium at or below the ceiling price. Rationing, likewise, should be discontinued in those fields in which this equilibrium has been reached.

It has been argued that prices should be allowed to rise as an incentive for private investment and increased production; that the inflationary effects would only be temporary; and that increasing production would bring prices down again. This is a dangerous recipe though it appeals to many who are tired of controls, who possess the necessary purchasing power to outbid their competitors, or hope to exploit temporary scarcities.

Under present conditions abnormal profits are not the best device for re-directing production; normal profits will do this job much better. The nation will be better off in the long run

if inflationary over-expansion and a subsequent deflation can be avoided.

The danger of over-expansion will be very serious even if we succeed in avoiding a wrong start. If we can judge from the aftermath of World War I, we may have to distinguish not only one but three transition periods before we reach normal times, namely (1) a reconversion period from war to peace; (2) a catching-up period of high employment, based upon deferred purchases, the spending of replacement reserves, and the adjustment of stocks of goods to new high levels of employment; and (3) a difficult transition from this catching-up period to a self-sustaining economy.⁴³ This third period will tend to show the typical characteristics of a depression with a vengeance and will test to the utmost our skill to maintain a reasonably high employment level. Thus the problem of transition, when taken in its broadest sense, leads back to the question whether and at what price full employment can be maintained.

The war has shown that full employment can be maintained and that price inflation can be kept in check through appropriate controls. War experiences, however, cannot be readily applied to a peace-economy that wants to be rid of the controls and restraints on which the functioning of a war-economy depends. We desire the result but reject the means by which it was achieved. We should like to have full employment without controls and without inflation. Those, at least, who trust in the self-regulating forces of the capitalist economy wish to see private business freed from government control. They may admit that government spending could achieve full employment. But they argue that, as government activities multiply, these activities will have to be co-ordinated, that this co-ordination will involve central planning and that

⁴³ See Sumner H. Slichter, "Foreign trade and post war stabilization," *Foreign Affairs*, July 1943.

"planning leads to dictatorship because dictatorship is the most effective instrument of coercion and, as such, essential if central planning on a large scale is to be possible."⁴⁴

Others are less convinced that we can rely on the self-regulating forces of a free capitalist economy. They argue that the experiences of the thirties and of the war indicate that a substantial amount of controls is unavoidable if the national income and the level of employment are to be kept high and that inflation can only be avoided through price and wage controls because, when full employment is reached, economic pressure groups cannot be relied upon to exercise sufficient self-restraint. Without price controls it seems doubtful to them that the government could meet its responsibility for securing always a volume of total expenditures high enough to maintain full employment. For, one may say, conservative monetary policies which could protect the economy against inflation without more direct controls are incompatible with a policy of providing for a volume of private and public expenditure that would guarantee full employment.

The present struggle of ideologies centers around two basic aims: the conservation of free private enterprise and the maintenance of full employment. Free private enterprise in a laissez-faire system cannot guarantee full employment. Full employment can only be maintained through government spending and government controls. Whether government activities of that scope are compatible with an economic system in which free private enterprise can prevail is the question. Incompatibility of *full* employment policies and laissez-faire, however, does not rule out a compromise solution in which the government's policies are so designed that private investment is stimulated rather than discouraged and a high *average* level of employment maintained without excessive government spending.

⁴⁴Friedrich A. Hayek, *The Road to Serfdom*, Chicago, University of Chicago Press, 1944, p. 70.

The future of monetary policy will depend on many factors. In an economy that pursues expansionary full employment policies the role of money will probably be similar to the part which money plays in a war economy: the rate of interest will not be permitted to regulate the quantity of money in circulation, and price inflation will be checked through price and wage controls. In an economy without such direct controls the regulation of the quantity of money through orthodox monetary policies will be imperative if inflation is to be avoided. But in no case will monetary controls alone suffice to achieve the aim of maximum utilization of resources. The combination of traditional monetary policies with the government's new responsibility for a high level of employment is so fundamental a problem that its solution may decide the future of our economic system.

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